How Transparency in Learning and Teaching (TILT) Supports Academic Development

Mary-Ann Winkelmes

Abstract: Transparency in Learning and Teaching (TILT) is an evidence-based teaching and learning practice that directly engages students and teachers in reciprocal communication about the methods of learning and teaching. It has demonstrably increased several predictors of postsecondary students' success: academic confidence, sense of belonging, skill development, persistence, and self-awareness of learning. TILT is practiced in postsecondary contexts on six continents, not only by instructors and students, but also by student-support personnel, mentors, academic developers, managers, administrators, and leaders of learning organizations to improve learning, planning, communication, and collaboration with internal and external stakeholders. This chapter defines TILT, reviews how it has improved students' success, and then describes applications of TILT in academic contexts ranging in scale from one-on-one interactions to large, multi-institutional educational initiatives.

1. Introduction

TILT is an acronym for transparency in learning and teaching, an evidence-based practice, and "tilt" implies the small size of the effort required to adopt it. TILT involves reciprocal communication among teachers and students not only about the knowledge to be learned, but also about how students are learning, why instructors manipulate students' learning experiences as they do, how the learning is relevant for students now and later in their lives, and how to assess the current learning. When teachers collaborate with students to incorporate students' perceptions, co-creating a learning experience that students define as transparent, then TILT is a small adjustment to existing practice that has a significant impact on student success. TILT has been associated with elevated measures of postsecondary students' academic confidence, sense of belonging, persistence, skill development, and students' awareness of their learning, all of which are known predictors of postsecondary students' success (Winkelmes, 2013; Winkelmes et al., 2016; Calkins and Winkelmes, 2018; Gianoutsos and Winkelmes, 2016; Winkelmes et al., 2019). While foundational TILT studies focused on postsecondary contexts in the U.S., TILT's cultural relevance is broadening. TILT has helped students to practice and learn skills that are prioritized in learning qualifications frameworks and employer surveys from around the world: communication, collaboration, learning on one's own, applying learning to new situations and problems, and evaluative judgment skills.[1] On six continents, in two-year, three-year, four-year, and advanced degree-granting institutions, TILT guides conversations about academic and co-curricular work, and also enhances the effectiveness of

[1] The author has found these skills prioritized in forty learning frameworks and twelve employer surveys from countries in the continents of Africa, Asia, Europe, Oceania, North America, and South America, including several multi-national examples: Organization for Economic Cooperation and Development (OECD). (2019). OECD future of education and skills 2030 concept note. OECD Publishing; Association of Southeast Asian Nations (ASEAN). (2021). Human resources development readiness in ASEAN. ASEAN Secretariat; Council of the European Union. (2018, June 4). Council recommendation of 22 May 2018 on key competences for lifelong learning (2018/C 189/01). Official Journal of the European Union, C189, 1-13.; International Tuning Academy. (n.d.). Generic Competencies. Tuning Academy; World Economic Forum. (2023). Future of Jobs Report. World Economic Forum.

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instruction, assessment, programs, and planning. In recent years, examples of TILT's applications in postsecondary settings worldwide have been shared in TILT-focused books and special issues of journals (Akella et al, 2022;, Brown, 2023; McNair et al., 2016; Sipes et al., forthcoming; Winkelmes et al., 2019), and more than 100 peer-reviewed articles and book chapters, as well as hundreds of websites, newsletters, and podcasts. This chapter explains what TILT looks like, reviews how TILT has improved students' success, and then describes applications of TILT that support academic development in contexts ranging in scale from individual interactions among students and their teachers or advisors to large, multi-institutional educational initiatives.

1.1 What does TILT look like?

The tripartite TILT Framework (Winkelmes, 2016-2025) (Figure 1) identifies three aspects of academic work for students and teachers to consider together *before* students begin doing that work: 1) its purpose (including the knowledge students will gain, the skills they will practice, and the lifelong value of those to students), 2) the associated tasks, and 3) criteria for evaluating the work's success, with examples of varied quality. This communication among the students and teacher can provide a fair opportunity for all students to succeed by establishing that students approaching the work share an understanding of the work's focus, its short-term and long-term value, the expected process for approaching it, the basis for determining the work's quality while it is underway, and full access to the necessary resources and materials. Transparency can only be achieved through collaboration among teachers and students, because no single teacher can predict all the barriers that may prevent students from completing the assigned work. For example, if all my art history students are to have a fair opportunity to succeed when I ask for their written visual analyses of a late-15th century Florentine sculpture of a *Madonna and Child* from Renaissance Italy, then I must collect, correct, and confirm their understanding of: 1) the short-and-long-term value of the skills of visual analysis they will be practicing, and 2) the process they will follow to practice those skills, and 3) the evaluative standards for judging the effectiveness of their work, including what makes some examples of visual analysis stronger than others. Furthermore, I must address barriers of access that students identify and then establish that each of them has full access to the necessary resources: the same high-resolution photographs and videos of the sculpture from multiple angles, and the tools needed to view them, as well as the transportation, permission, physical access, and financial resources they will need if they are viewing the sculpture in the original in a local museum. Each group of students to approach this learning exercise offers new insights about how to establish transparency by identifying barriers that compromise their opportunity to compare the work's current viewing angles and lighting conditions with those for which the sculpture was created, and to consider how such conditions affect a viewer's perception of it. Merely providing my students with a rubric or checklist of criteria for their upcoming work does not ensure transparency. This is because students may not share the same understanding of what the criteria described on a rubric might look like when they are demonstrated in real-world work. Take the word "analysis," for example. The analysis that I expect from my art history students is very different from the kind of analysis their economics or nursing or engineering or criminal justice or literature professor would expect. By offering examples of varying quality that demonstrate skills like analysis happening in contexts where students might find themselves in the future, teachers can challenge students to determine what makes one example more effective than another and prepare students to evaluate not only the quality of their work while it is underway, but also the effectiveness of their working process.

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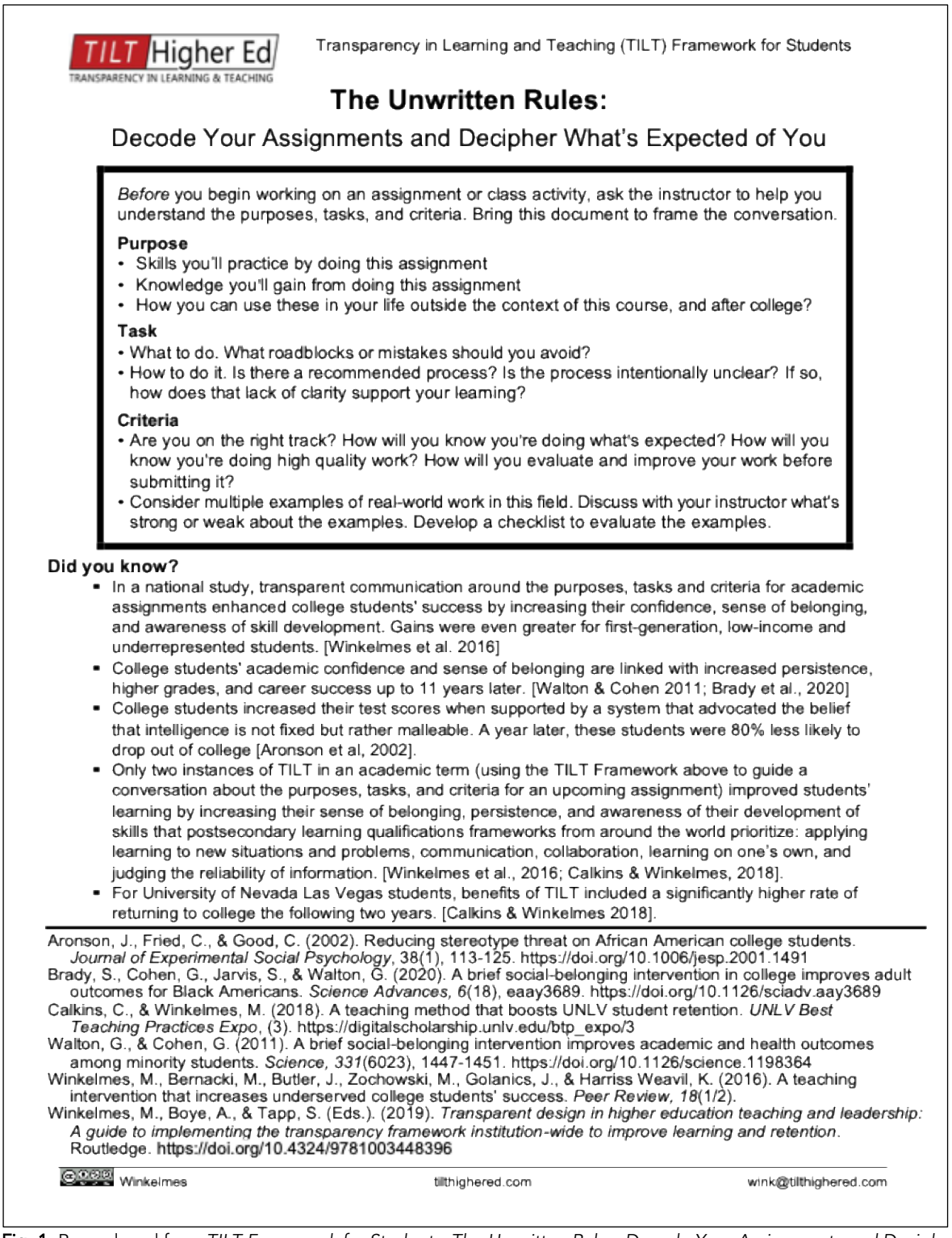

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Transparency in Learning and Teaching (TILT) Framework for Students

The Unwritten Rules:

Decode Your Assignments and Decipher What's Expected of You

Before you begin working on an assignment or class activity, ask the instructor to help you understand the purposes, tasks, and criteria. Bring this document to frame the conversation.

Purpose
- Skills you'll practice by doing this assignment
- Knowledge you'll gain from doing this assignment
- How you can use these in your life outside the context of this course, and after college?

Task
- What to do. What roadblocks or mistakes should you avoid?
- How to do it. Is there a recommended process? Is the process intentionally unclear? If so, how does that lack of clarity support your learning?

Criteria
- Are you on the right track? How will you know you're doing what's expected? How will you know you're doing high quality work? How will you evaluate and improve your work before submitting it?
- Consider multiple examples of real-world work in this field. Discuss with your instructor what's strong or weak about the examples. Develop a checklist to evaluate the examples.

Did you know?

- In a national study, transparent communication around the purposes, tasks and criteria for academic assignments enhanced college students' success by increasing their confidence, sense of belonging, and awareness of skill development. Gains were even greater for first-generation, low-income and underrepresented students. [Winkelmes et al. 2016]
- College students' academic confidence and sense of belonging are linked with increased persistence, higher grades, and career success up to 11 years later. [Walton & Cohen 2011; Brady et al., 2020]
- College students increased their test scores when supported by a system that advocated the belief that intelligence is not fixed but rather malleable. A year later, these students were 80% less likely to drop out of college [Aronson et al, 2002].
- Only two instances of TILT in an academic term (using the TILT Framework above to guide a conversation about the purposes, tasks, and criteria for an upcoming assignment) improved students' learning by increasing their sense of belonging, persistence, and awareness of their development of skills that postsecondary learning qualifications frameworks from around the world prioritize: applying learning to new situations and problems, communication, collaboration, learning on one's own, and judging the reliability of information. [Winkelmes et al., 2016; Calkins & Winkelmes, 2018].
- For University of Nevada Las Vegas students, benefits of TILT included a significantly higher rate of returning to college the following two years. [Calkins & Winkelmes 2018].

Aronson, J., Fried, C., & Good, C. (2002). Reducing stereotype threat on African American college students. *Journal of Experimental Social Psychology*, 38(1), 113-125. https://doi.org/10.1006/jesp.2001.1491
Brady, S., Cohen, G., Jarvis, S., & Walton, G. (2020). A brief social-belonging intervention in college improves adult outcomes for Black Americans. *Science Advances, 6*(18), eaay3689. https://doi.org/10.1126/sciadv.aay3689
Calkins, C., & Winkelmes, M. (2018). A teaching method that boosts UNLV student retention. *UNLV Best Teaching Practices Expo*, (3). https://digitalscholarship.unlv.edu/btp_expo/3
Walton, G., & Cohen, G. (2011). A brief social-belonging intervention improves academic and health outcomes among minority students. *Science, 331*(6023), 1447-1451. https://doi.org/10.1126/science.1198364
Winkelmes, M., Bernacki, M., Butler, J., Zochowski, M., Golanics, J., & Harriss Weavil, K. (2016). A teaching intervention that increases underserved college students' success. *Peer Review, 18*(1/2).
Winkelmes, M., Boye, A., & Tapp, S. (Eds.). (2019). *Transparent design in higher education teaching and leadership: A guide to implementing the transparency framework institution-wide to improve learning and retention*. Routledge. https://doi.org/10.4324/9781003448396

Winkelmes tilthighered.com wink@tilthighered.com

Fig. 1 Reproduced from *TILT Framework for Students, The Unwritten Rules: Decode Your Assignments and Decipher What's Expected of You* by M.A. Winkelmes, 2016-2025, TILT Higher Ed Examples and Resources https://www.tilthighered.com/resources. Reprinted with permission.

2. How TILT Has Improved Postsecondary Student Success

Several research studies demonstrate that applying TILT, even in a limited way, can efficiently and equitably increase postsecondary students' confidence, belonging, persistence, skill development, and metacognition (self-reflection about thinking and learning). A 2015 study conducted in the U.S. with the American Association of Colleges and Universities and funded by TG Philanthropy examined the impact of just two instances of TILT in one academic term (Winkelmes et al., 2016). Thirty-five instructors in varied academic disciplines at seven institutions each taught a course that met in two sections in the same academic term. In one section they made no changes to existing academic assignment prompts. In the other, they consulted the TILT Framework for Teachers (Winkelmes, 2012-2025) (Figure 2) to draft two assignment prompts. Then they TILTed those two prompts by communicating in their own way and at their own discretion with their students about three aspects of the upcoming assigned work: 1) the purpose (the skills students would practice, the knowledge they would gain, and the lifelong relevance of these), 2) the tasks (the process for doing the work), and 3) the criteria for success (based on students' analyses of multiple teacher-provided examples of more and less effective applications of the required skills in real-world situations). The institutions in the study are broadly representative of U.S. postsecondary schools offering two-year, four-year and advanced degrees. They are geographically dispersed, urban and rural, residential and non-residential, ranging in size from approximately 800 students to tens of thousands of students, and enrolling substantial populations of traditionally underserved students (those with the lowest completion rates and the highest risk of discontinuing their postsecondary studies in the U.S.: students who belong to underrepresented racial and ethnic groups, who are first in their family to attend a postsecondary institution, and/or who experience financial constraints). Those students exposed to transparent instruction experienced significantly larger gains in academic confidence, sense of belonging, and metacognitive awareness of their skill development. Such gains are associated with persistence in postsecondary study as well as career success up to 11 years later (Walton & Brady, 2021; Brady et al., 2020; McGuire, 2015; Cook, 2013; Walton & Cohen, 2011; Hausmann et al., 2009; Hausmann et al., 2007). The gains were somewhat larger for students who have been historically underserved in U.S. postsecondary education (Winkelmes et al., 2016).

In a 2018 study, first-year university students who experienced transparent instruction in two academic assignments in one course were more likely to persist into their second year and third year of study and more likely to recognize their skill development than students who did not experience transparent instruction in their first year. Students belonging to historically underserved groups in the U.S. saw the greatest gains (Calkins & Winkelmes, 2018).

A 2024 study explored the impact of TILT on 11,046 computer science students at 203 postsecondary institutions in the U.S. and found that students' perception of transparency is positively correlated with their self-efficacy and sense of belonging in computer science. The benefits were greater for some students of races and ethnicities that are underrepresented in U.S. postsecondary computer science programs (Ojha et al., 2024).

A 2025 analysis of the impact of TILT on students earning two-year degrees at 17 community and technical colleges in the state of Washington in the U.S. identified similar results. Students who worked on two TILTed academic assignments in one course experienced significant increases in belonging and skill development. In some instances, these gains were greater for ethnically and racially underrepresented students and financially constrained students. The study revealed that TILT enhances students' skill development both directly and indirectly. TILT has a direct relationship to skill development and a direct relationship to sense of belonging, while belonging also has an independent impact on skill development (Richard, Weisz, et al., underway).

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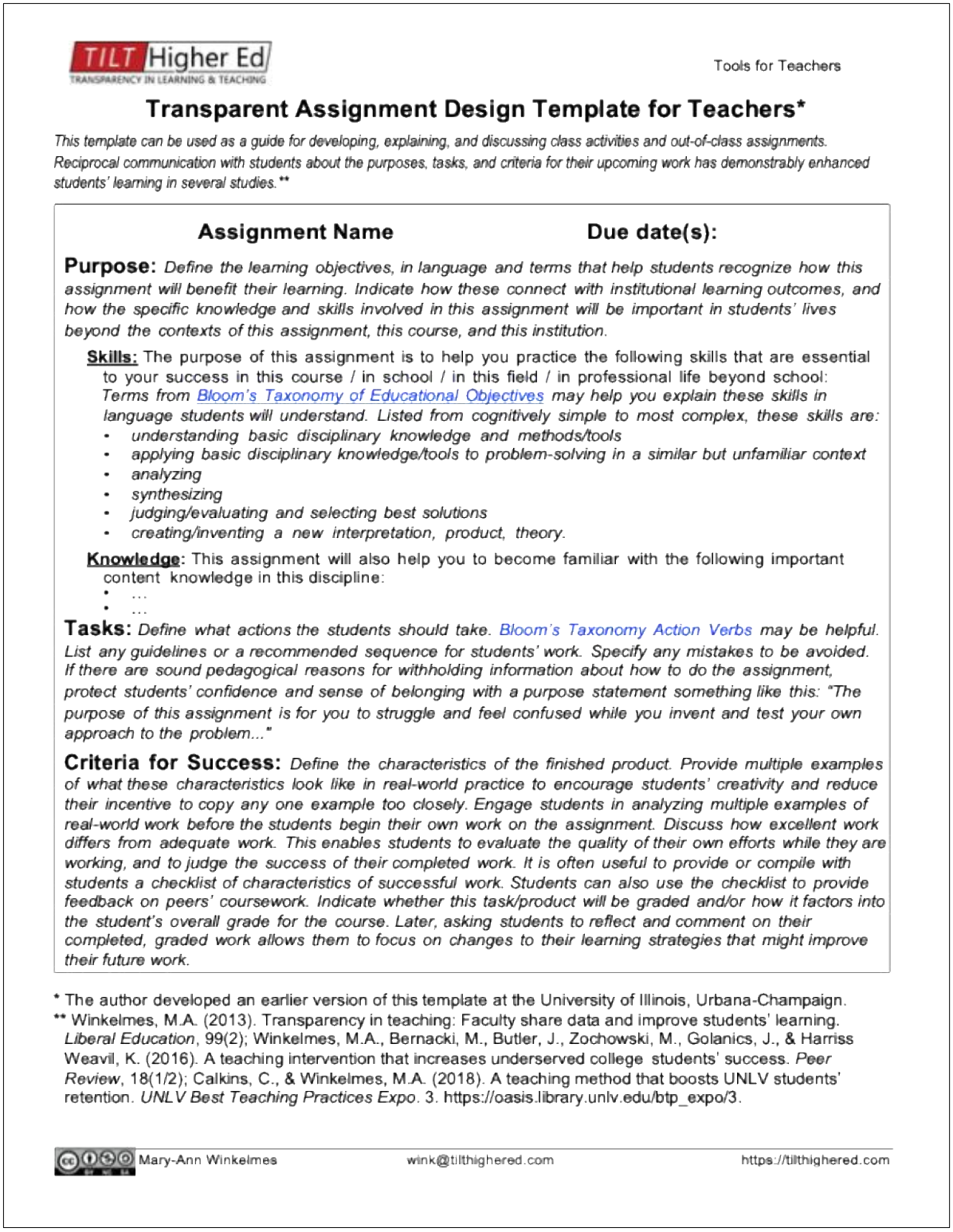

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Tools for Teachers

Transparent Assignment Design Template for Teachers*

*This template can be used as a guide for developing, explaining, and discussing class activities and out-of-class assignments. Reciprocal communication with students about the purposes, tasks, and criteria for their upcoming work has demonstrably enhanced students' learning in several studies.***

Assignment Name **Due date(s):**

Purpose: *Define the learning objectives, in language and terms that help students recognize how this assignment will benefit their learning. Indicate how these connect with institutional learning outcomes, and how the specific knowledge and skills involved in this assignment will be important in students' lives beyond the contexts of this assignment, this course, and this institution.*

Skills: The purpose of this assignment is to help you practice the following skills that are essential to your success in this course / in school / in this field / in professional life beyond school:
Terms from Bloom's Taxonomy of Educational Objectives may help you explain these skills in language students will understand. Listed from cognitively simple to most complex, these skills are:

- *understanding basic disciplinary knowledge and methods/tools*
- *applying basic disciplinary knowledge/tools to problem-solving in a similar but unfamiliar context*
- *analyzing*
- *synthesizing*
- *judging/evaluating and selecting best solutions*
- *creating/inventing a new interpretation, product, theory.*

Knowledge: This assignment will also help you to become familiar with the following important content knowledge in this discipline:

- …
- …

Tasks: *Define what actions the students should take. Bloom's Taxonomy Action Verbs may be helpful. List any guidelines or a recommended sequence for students' work. Specify any mistakes to be avoided. If there are sound pedagogical reasons for withholding information about how to do the assignment, protect students' confidence and sense of belonging with a purpose statement something like this: "The purpose of this assignment is for you to struggle and feel confused while you invent and test your own approach to the problem..."*

Criteria for Success: *Define the characteristics of the finished product. Provide multiple examples of what these characteristics look like in real-world practice to encourage students' creativity and reduce their incentive to copy any one example too closely. Engage students in analyzing multiple examples of real-world work before the students begin their own work on the assignment. Discuss how excellent work differs from adequate work. This enables students to evaluate the quality of their own efforts while they are working, and to judge the success of their completed work. It is often useful to provide or compile with students a checklist of characteristics of successful work. Students can also use the checklist to provide feedback on peers' coursework. Indicate whether this task/product will be graded and/or how it factors into the student's overall grade for the course. Later, asking students to reflect and comment on their completed, graded work allows them to focus on changes to their learning strategies that might improve their future work.*

* The author developed an earlier version of this template at the University of Illinois, Urbana-Champaign.
** Winkelmes, M.A. (2013). Transparency in teaching: Faculty share data and improve students' learning. *Liberal Education*, 99(2); Winkelmes, M.A., Bernacki, M., Butler, J., Zochowski, M., Golanics, J., & Harriss Weavil, K. (2016). A teaching intervention that increases underserved college students' success. *Peer Review*, 18(1/2); Calkins, C., & Winkelmes, M.A. (2018). A teaching method that boosts UNLV students' retention. *UNLV Best Teaching Practices Expo*. 3. https://oasis.library.unlv.edu/btp_expo/3.

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3. How TILT Supports Academic Development

Around the world, the TILT Framework is applied among varied stakeholders who play vital roles in facilitating students' learning, the effectiveness of educational institutions, and the success of graduates whose adaptable learning skills will maintain their efficacy as global citizens and lifelong

learners. TILT enhances learning and teaching experiences in nine academic development contexts considered in this chapter: students' feedback to teachers in academic setting and advisors in co-curricular learning experiences, self-assessment and self-efficacy, informed communication about new tools and technologies for learning and teaching, curricular planning, educational development, student success plans, multi-institutional strategic planning, and scholarly research about teaching and learning.

3.1 Students and Teachers: Course-centered Learning

The TILT Framework for Students (Figure 1) is a highly effective academic development tool when students and teachers implement it together. For students who don't recognize the relevance and value of upcoming work, the TILTed conversation can heighten their awareness of the skills they will be practicing, and how these align with lifelong learning outcomes prioritized by national and international learning frameworks and with skills sought by employers. Students will interpret a teacher's language about purposes, tasks, and criteria for their upcoming work in a way that may differ from the teacher's intent because before students execute the work, they lack the insights that come from completing it, assessing its quality, and evaluating the effectiveness of their approach. Reciprocal conversations among teachers and students about the purposes, tasks, and criteria for upcoming work provide opportunities for students to identify barriers to their success before beginning that work, and for teachers to address those barriers by providing further information, clarification, and any necessary resources before misunderstandings affect students negatively. Structured pedagogical partnerships, in which student consultants observe teachers and reflect with them on learning experiences, are associated with increases in students' sense of belonging as well as pedagogical development for teachers (Cook-Sather, 2015; Cook-Sather et al., 2023). TILTed conversations among teachers and students about the purposes, tasks, and criteria for learning exercises afford similar benefits (Winkelmes et al., 2016; Winkelmes et al., 2015).

By listening to students in a TILTed conversation about upcoming work, teachers can gain insight about which evidence-based pedagogies will be the most helpful in the moment. A multitude of factors can affect students' understanding and their readiness to conduct academic work, and no single teacher can predict precisely how the intersection of these factors will disadvantage some students and privilege others before the work begins (Crenshaw, 1991; Verschelden, 2017; Wasserman & Ayeni, 2024). The TILT Framework advances effective teaching practices by providing real-time data about the perceptions of every new group of students to approach an assigned piece of work. This is information that no teacher can fully predict on their own, and it arrives while the teacher still has time to adjust instructions and materials. Consider an assignment prompt from an introductory communications course that asks students to conduct an interview with a professional in the field they are considering as a career (Johnson, n.d.). A conversation among the teacher and students about students' perceptions of the purposes, tasks, and criteria for this work might reveal several barriers that would hamper the students' work, including: many of the students have not yet identified their career goals, many lack access to a practicing professional in a field that might interest them, few students have experience with designing good interview questions or formulating follow-up questions, many students lack transportation to the interviewee's place of work, and some students with full course schedules and part-time jobs or other commitments are not available to meet the professional during business hours. After gathering this information from their TILTed communication with students, the instructor might revise the assignment prompt to prepare students for an effective learning experience by including smaller preparatory assignments where students would draft interview questions, evaluate them, and select the best ones, and hone their communication skills in practice interviews. Further, the instructor could provide students with equal access to willing professionals by arranging for students to interview them where and when the class regularly meets, where students could ask their revised interview questions and collaborate in groups to pose follow-up questions in real time. The TILTed conversation helps the teacher put all the

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students at the same starting line with the necessary resources and understanding to succeed. Without it, students would be unequally prepared to gain from doing the assigned work, and fewer students would achieve the teacher's learning goals.

Transparency around the learning goals, processes, and desired criteria for upcoming work increases not only students' motivation and persistence in conducting academic work, but also their likelihood of future success in jobs and careers. For example, students learning C++ computer programming through assigned exercises at Breda University of Applied Sciences in the Netherlands focus on how their programming skills prepare them to shape virtual gaming environments and holographic experiences as prospective employees of specific gaming companies that partner with the university. Similarly, students analyzing shipping routes can contribute directly to reducing the use of resources, lowering the cost of goods, and increasing their availability in their local community.[2] In South Africa at North-West University, a TILTed communication about a mapping exercise helps students recognize how their upcoming work will prepare them to identify distortions in geographic information systems that can affect large-scale international comparisons of countries' resources and small-scale urban planning upgrades close to home (Ayob, 2023).

Teachers and students have described their gains from using TILT. Students appreciate that TILT allows them to focus effectively on doing their best quality work, by eliminating the time that is sometimes lost to struggling with instructions that aren't clear to them (Berrett, 2015; Emekako & Winkelmes, 2024). Teachers notice short term benefits, like higher quality student work that is easier to grade, higher completion rates, and fewer requests for extended due dates (Winkelmes et al., 2015). In addition, instructors point to long-term benefits. Once they have TILTed two assignments, they consider additional opportunities like TILTing a syllabus, a course, an entire curriculum, and their approach to teaching (Winkelmes, 2015; Copeland et al., 2018; Emekako & Winkelmes, 2024).

3.2 Students, Advisors and Student-support Personnel: Co-curricular Learning

The TILT Framework for Student Support Personnel (Winkelmes, 2018-2025) (Figure 3) supports effective communication about co-curricular learning opportunities among students and their mentors, advisors, employment supervisors, and coaches (Humphreys et al., 2019; Croyden & Wells, 2021). It provides a process for guiding students' reflections about the applicability of their learning and the quality of their performance. This practice enhances their capacity to self-evaluate their efficacy in future workplaces. For example, the job description for the position of student manager of a campus gymnasium building at the University of Nevada, Las Vegas indicates that students will practice important skills in the position that align with several of the university's learning goals for all students: communication, multi-cultural understanding, citizenship and ethics, and critical thinking. The job supervisor reviews the student's performance in the role using the TILTed job description (abbreviated in Figure 4, left column) as a guide to help the student evaluate their success in applying those specific skills. This supports the student's success in the job and their ability to offer a prospective employer examples of how they can apply essential skills in the workplace (Humphreys et al., 2019). A career counselor might similarly use the TILT Framework to guide students preparing work samples for an electronic portfolio they will send to prospective employers (Figure 4, middle column). The Framework can guide the student's preparation for each meeting with the counselor, the agenda for the conversation itself, and even their talking points for job interviews. For student athletes, preparing for TILTed weekly meetings with their advisor habituates them to reflect on their work during the week and adopt effective practices for time management and self-assessment (Figure 4, right column). Athletic coaches can use the TILT Framework to raise students' awareness of the many times they are practicing and honing lifelong learning skills that employers seek (Humphreys et al., 2019).

[2] These examples come from conversations between the author and instructors and staff from Breda University of Applied Sciences during a May 2022 institute in Breda, Netherlands

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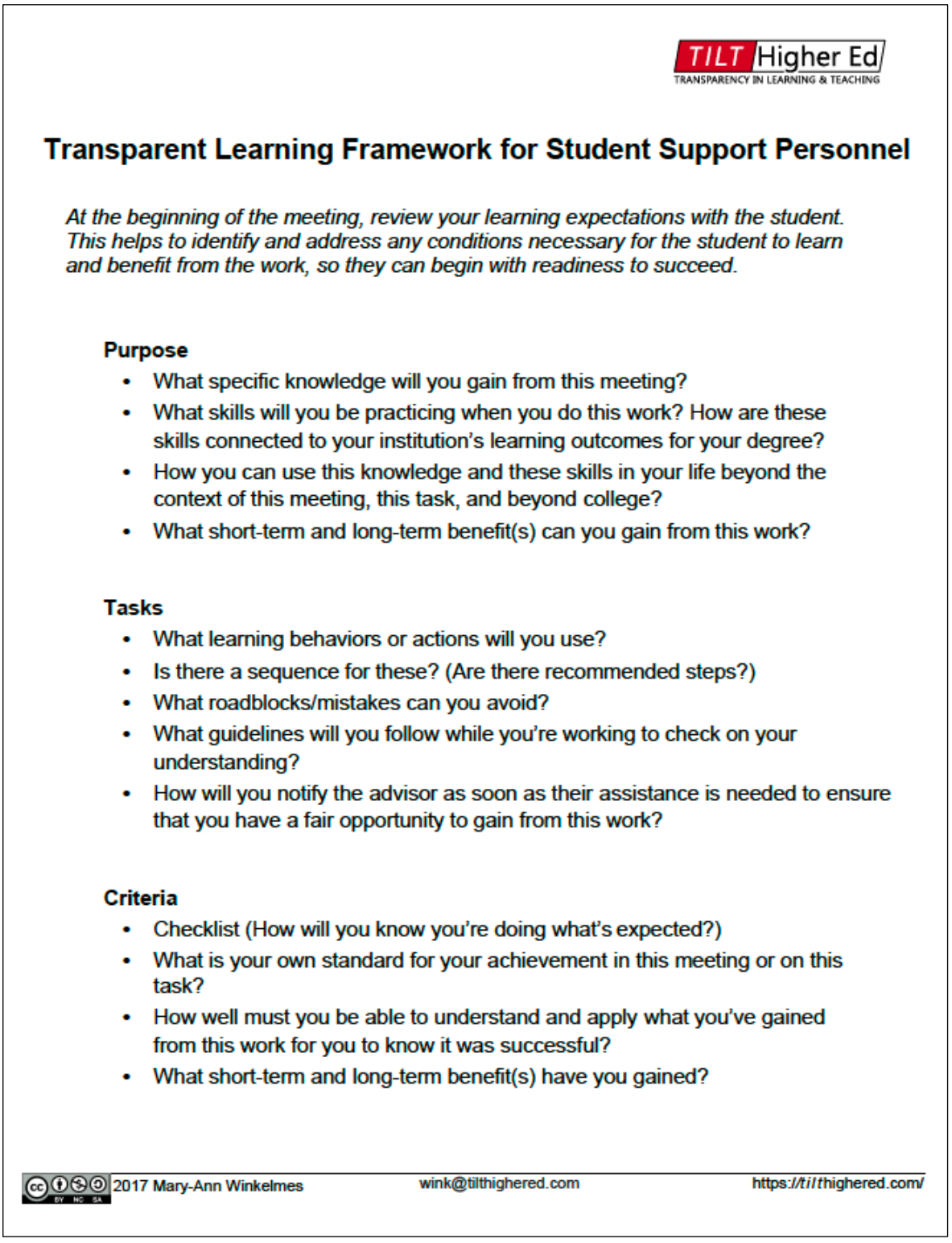

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Transparent Learning Framework for Student Support Personnel

At the beginning of the meeting, review your learning expectations with the student. This helps to identify and address any conditions necessary for the student to learn and benefit from the work, so they can begin with readiness to succeed.

Purpose

- What specific knowledge will you gain from this meeting?
- What skills will you be practicing when you do this work? How are these skills connected to your institution's learning outcomes for your degree?
- How you can use this knowledge and these skills in your life beyond the context of this meeting, this task, and beyond college?
- What short-term and long-term benefit(s) can you gain from this work?

Tasks

- What learning behaviors or actions will you use?
- Is there a sequence for these? (Are there recommended steps?)
- What roadblocks/mistakes can you avoid?
- What guidelines will you follow while you're working to check on your understanding?
- How will you notify the advisor as soon as their assistance is needed to ensure that you have a fair opportunity to gain from this work?

Criteria

- Checklist (How will you know you're doing what's expected?)
- What is your own standard for your achievement in this meeting or on this task?
- How well must you be able to understand and apply what you've gained from this work for you to know it was successful?
- What short-term and long-term benefit(s) have you gained?

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Fig. 3. Reproduced from *TILT Framework for Student Support Personnel with Examples*, p. 1, by M.A. Winkelmes, 2018-2025, TILT Higher Ed Examples and Resources https://www.tilthighered.com/resources. Reprinted with permission.

Supervisor & Student	Career Counselor & Student	Advisor & Student Athlete
PURPOSE: Gym Manager Practice skills that are institutional learning outcomes: communication, global/multi-cultural understanding, citizenship & ethics, critical thinking **TASKS:** • Act as supervisor/role model, • Provide training & tours • Know services & equipment • Follow emergency protocol **CRITERIA:** • Identify learning outcomes achieved • Explain how you applied skills	**PURPOSE: e-Portfolio Entry** • Skills I practiced • Knowledge I gained • Value to my career goals **TASKS:** • My process • My rationale for this approach **CRITERIA:** • Criteria I used to evaluate the success of my work • Applications in my career where I can apply this experience	**PURPOSE: Academic Efficacy** • Recognize knowledge & skills gained • Understand short- and long-term benefits **TASKS:** • Review of course schedule, sport schedule • Review of syllabi, assignments, readings, exams, sports obligations • Evaluate and adjust time management **CRITERIA:** • Grades and athletic performance • Credits earned on time • Successful balance: academic and athletic

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Academic librarians often use the TILT Framework for Student Support Personnel (Figure 3) when students approach them for assistance with academic research. The Framework offers an efficient way for them to gather information they need to guide students toward the needed resources (Bowles-Terry 2017). In addition, the conversation with the librarian can train students to parse future assignment prompts effectively, even in contexts where TILTed conversations have not yet occurred. Xan Goodman, a librarian at the University of Nevada, Las Vegas has also applied the TILT Framework to creating an assignment prompt that focuses students on consciously practicing the skills associated with research, including: assessing an author's background (education, experience, and employer), a study's focus and/or target population, data collection methods, statistics and findings, and the reliability of how the study applies these in its context (Gianoutsos et al., 2024).

Teams of student supervisors, advisors, instructors, career counselors and supporters across a postsecondary institution can coordinate their uses of the TILT Framework to further support students' metacognition. Along with their librarian colleagues, tutors and advisors at the University of Nevada, Las Vegas reinforced students' facility with the TILT Framework whenever students requested their help. Academic advisors adopted the TILT Framework for Students (Figure 1) to guide students with academic work, while course planning counselors applied the TILT Framework for Student Support Personnel (Figure 3) to help students map out their course selections and schedules to meet degree requirements. And advisors TILTed their weekly one-on-one sessions with student athletes (Figure 4, right column) (Humphreys et al, 2019). In service-learning experiences, supervisors at Boise State University have applied the TILT Framework to ensure that the benefits to both students and the community organizations they work with are transparent, accessible, and balanced (Rice et al., 2025). Student-support personnel and administrators can provide the TILT Framework for Students (Figure 1) to incoming new students at the beginning of an academic year and encourage them to use it to seek transparency where it might be missing. Students can share the research summary and citations at the bottom of the TILT Framework for Students as evidence

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when they request transparency from instructors and advisors who may not yet have encountered TILT examples or TILT-focused publications (Humphreys et al., 2019). Multiple exposures to the TILT Framework across their postsecondary curricular and co-curricular learning experiences can increase students' metacognition and strengthen their self-efficacy as learners (Winkelmes, 2022; Zald & Guittar, 2024).

3.3 Students' self-assessment and pre-assessment

Assessment usually takes place *post hoc*, after work is completed. Before that work begins, the TILT Framework supports conversations with students that identify not only learning goals and processes, but also the criteria to evaluate examples of varying quality. Because their advisor or coach or teacher has engaged students in evaluating multiple examples of what the required skills look like in real-world practice, students are able to assess the quality of their work while they can still improve it. This applies not only to assigned work that students complete outside of class meetings but also to students' participation and contributions during class meetings. To focus students' attention on what and how they are learning in a class meeting or a collaborative learning exercise, the Transparent Equitable Learning Frameworks (Winkelmes, 2021a-2025; Winkelmes, 2021b-2025) structure a brief reflection on the purposes, tasks, and criteria for learning in these contexts. Students who use the TILT Framework as a pro-active, pre-assessment tool for planning their approach and foreseeing possible learning gains are practicing the kind of forward-looking, predictive self-assessment that will inform their future work and learning and even their choices about when and how to use tools, including generative artificial intelligence (AI) tools, to support their learning long after completing their degrees.

3.4 Evolving Conditions and New Technologies

As technological advances and new research about the neuroscience and psychology of learning lead to new practices and tools for learning and teaching, the TILT Framework has been recognized as a nimble pedagogical tool for adapting to shifting conditions, like when the COVID pandemic necessitated a rapid change from primarily on-site to primarily online instruction (Villalobos & Jessup, 2021; Ashe & Reilly, 2022). For many teachers and instructional designers, TILT has served as a framework for online course design. For others, the TILT Framework enhances communication among instructors and students in an asynchronous online learning context (Howard et al., 2019; Hammons, 2020). An asynchronous TILTed conversation about purposes, tasks, and criteria for students' upcoming work is scheduled in phases. Students share their thoughts about approaching an upcoming assignment by a particular date, and instructors use that input to inform the revised version of the assignment prompt by a specific subsequent date.

Both students and teachers have much to gain from approaching their uses of AI tools transparently (Bowen & Watson, 2024, Chapter 10). TILTed conversations among instructors and students can support clear communication about the rationales for students' and teachers' use of AI tools. For example, AI tools can help to format citations, edit and clarify writing, locate peer-reviewed publications, design courses and learning activities, proof-read, offer feedback, format charts, explain concepts, coach students' understanding of basic principles, help students identify required courses, suggest academic pathways for majors, and analyze incoming data to identify students who may urgently need academic or financial or mental health support (Bowen and Watson, 2024; Jimenez Martines et al., 2025; Tolentino, 2024). But these benefits are accompanied by risks.

TILT can help to mitigate some of the risks students face when learning with AI. Some clear risks for learners are emerging, including overdependence, reduced retention, and diminished psychological well-being (Bastani et al., 2024; Klimova & Pikhart, 2025; Velastegui-Hernandez et al, 2023). Students recognize that overuse of AI could limit their autonomy, creativity, critical thinking skills, and decision-making capacity (Zhai et al., 2024). A recent study suggests that students who used AI tools to assist them in writing an essay experienced 55% less neural network connectivity

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than those who wrote an essay on their own. The AI-assisted writers were less able to quote ideas from their essays than those who wrote on their own (Kosmyna et al., 2025). When students and teachers or advisors share an understanding of the specific skills, knowledge, and approaches that are the aims of upcoming work, they can evaluate where and how AI serves those goals for students' learning, and when it might defeat them. In the interview assignment from the communications course mentioned in section 3.1 (Johnson, n.d.), learning goals for the students' interview with a professional might include: 1) understand how to design good interview questions for gathering information from a person based on their lived experience, 2) practice posing spoken questions and processing the spoken responses in real time while maintaining professional tone, pacing, and eye contact, 3) generate follow-up questions to gather additional information about ideas emerging in the conversation, 4) communicate interest and convince a potential employer of your seriousness about a job opportunity, 5) gather information about a specific job. An AI assistant might help a student approach the first and last goals but would not succeed in providing the student with the second, third, and fourth learning outcomes. Students who fully understand the lifelong value of these learning goals will recognize that prompting AI to do this work denies them an opportunity to practice and learn skills that are important for them to thrive in school and in life. Given this transparent understanding about the learning experience, some students may still prompt AI to do the work for them because they need to save time in the moment. But they will know that they must later find ways to practice and learn these essential skills on their own if they hope to apply them in the future with people in professional settings and elsewhere. If transparent communication among teachers and students around the purposes, tasks, and criteria for an upcoming assignment does not take place, then some students may not recognize how AI usage can support and/or diminish their learning.

Teachers can use the TILT Framework to model appropriate acknowledgment of AI usage by identifying precisely where and how they incorporated AI's suggestions in crafting a learning exercise or assignment prompt, and their own purposes, tasks, and criteria for doing so. AI can help a teacher draft more transparent assignment prompts by clarifying and refining purposes, tasks, and criteria, and by generating multiple examples to illustrate skills applied successfully and less effectively in real world situations. The TILT Framework can help a teacher design a project that engages students in using AI, evaluating the results, and demonstrating how they revised their work to incorporate AI's assistance and compensate for AI's weaknesses. Once the AI tool recognizes the learning goals, a teacher can ask it to generate a variety of learning exercises that may help students to achieve those goals. Teachers have constructed student helper tools with AI that use the work's purposes, tasks and criteria as a guide for coaching students to improve or correct their work without solving or completing students' work for them (Bowen & Watson, 2024). Academic developers have offered further examples on their websites about how teachers can integrate TILT with AI (Brinkman, 2024; Stanford University Center for Teaching and Learning, 2023; The Ohio State University Teaching and Learning Resource Center, 2025). But AI cannot be as effective a partner in making academic work transparent as the actual students who must do that work. Students' perceptions about the work's purposes, tasks, and criteria will be the most important advice for the teacher to incorporate when editing an assignment prompt to make it fully transparent.

TILT can also help to improve trust among students and institutions around usage of AI. Much of the focus on AI in higher education centers around students' academic integrity, their acknowledgment of how they use AI, and their honesty about it. Seventy-five percent of chief technology officers surveyed at U.S. colleges and universities reported that generative AI is a moderate or significant risk to academic integrity (Custer & Flaherty, 2025). Postsecondary institutions have an opportunity to take an approach that begins with positive modeling rather than punitive policy making. Educators and institutions can demonstrate for students the appropriate disclosure and rationale for their own uses of AI to gather, analyze, and understand students' data, and TILT offers a simple, tripartite framework for this communication. Institutional leaders can be transparent with students about: 1) why they use AI to process students' data (their purpose), 2) how

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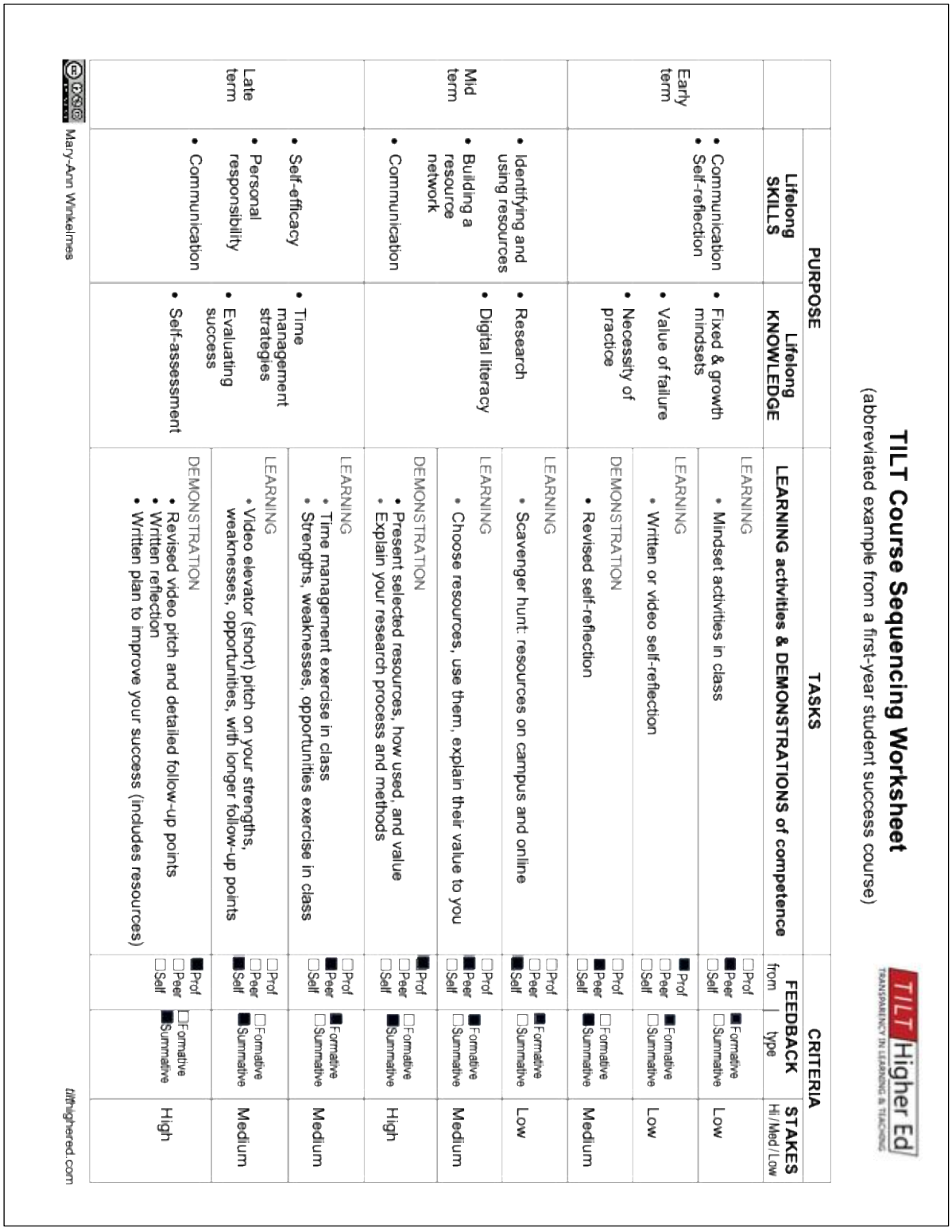
they do it (their tasks), and 3) how their use of AI tools will improve students' educational experiences (their criteria for success). Those institutions and educators who embrace the teachable moment that AI provides will offer students strong examples of how to make informed choices about when to use AI and how to acknowledge that use responsibly.



TILT Course Sequencing Worksheet

(abbreviated example from a first-year student success course)

	PURPOSE		TASKS	CRITERIA		
	Lifelong SKILLS	Lifelong KNOWLEDGE	LEARNING activities & DEMONSTRATIONS of competence	FEEDBACK from	FEEDBACK type	STAKES Hi/Med/Low
Early term	• Communication • Self-reflection	• Fixed & growth mindsets • Value of failure • Necessity of practice	LEARNING • Mindset activities in class	☐Prof ■Peer ☐Self	■Formative ☐Summative	Low
			LEARNING • Written or video self-reflection	■Prof ☐Peer ☐Self	■Formative ☐Summative	Low
			DEMONSTRATION • Revised self-reflection	☐Prof ■Peer ☐Self	☐Formative ■Summative	Medium
Mid term	• Identifying and using resources • Building a resource network • Communication	• Research • Digital literacy	LEARNING • Scavenger hunt: resources on campus and online	☐Prof ☐Peer ■Self	■Formative ☐Summative	Low
			LEARNING • Choose resources, use them, explain their value to you	☐Prof ■Peer ☐Self	■Formative ☐Summative	Medium
			DEMONSTRATION • Present selected resources, how used, and value • Explain your research process and methods	■Prof ☐Peer ☐Self	☐Formative ■Summative	High
Late term	• Self-efficacy • Personal responsibility • Communication	• Time management strategies • Evaluating success • Self-assessment	LEARNING • Time management exercise in class • Strengths, weaknesses, opportunities exercise in class	☐Prof ■Peer ☐Self	■Formative ☐Summative	Medium
			LEARNING • Video elevator (short) pitch on your strengths, weaknesses, opportunities, with longer follow-up points	☐Prof ☐Peer ■Self	☐Formative ■Summative	Medium
			DEMONSTRATION • Revised video pitch and detailed follow-up points • Written reflection • Written plan to improve your success (includes resources)	■Prof ☐Peer ☐Self	☐Formative ■Summative	High

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3.5 Departments, Curricula, and Administrative Planning

The TILT Framework has supported teams of teachers, student support personnel, and administrators in curricular planning. At Sam Houston State University in Texas for example, a team of roughly a dozen student-support personnel and instructors responsible for teaching a large-enrollment, required, first-year college success course collaborated with the program director to TILT multiple aspects of the course. They began with academic assignment prompts, agreeing to revise and redistribute them after holding TILTed conversations with students. Using the TILT Course Sequencing Worksheet (Winkelmes, 2015-2025), they arranged the assignments in order of skill development, from simplest foundational skills to more complex skills that require students' mastery of prior skills. An abbreviated example appears in Figure 5. The team adjusted the introductory language on the course syllabus document to address students' most urgent questions, which aligned with the TILT Framework: purposes (what skills will I practice and what knowledge will I gain in this course and how can I use those now and later?); tasks (what work will I do and how will I approach it?); and criteria (how will my work be evaluated and how can I assess and improve it before I submit it?). The group summarized the skills to be practiced and knowledge to be gained in each class meeting, using language that aligned with the purposes defined in the syllabus and assignment prompts. This careful integration of TILT throughout the course aimed to enhance students' success by increasing their metacognition, confidence, belonging, and self-efficacy.

The TILT Framework also supports the design of entire curricula and communications about them. Instructors and administrators can spend many hours designing curricula for students, discussing prerequisite knowledge and skills and required levels of expertise that students should achieve each term and each year. Often, these plans aren't communicated to students in a way they can easily grasp. In designing an updated introductory curriculum for the Kinesiology department at the University of Nevada, Las Vegas, instructors and their associate dean adopted the TILT Framework to plan a pathway for students through a new sequence of transparently designed courses, and to communicate that path for the students who would be the first to follow it.[3]

Registrar's Notification	Performance Review	Staff Meeting Agenda
PURPOSE: Clear the pathway for students' completion • Remove barriers and delays for transfer students' progression TASKS: • Synchronize updates to policy with technical system adjustments and edits to course catalogue • Reduce frequency of exceptions and waivers CRITERIA: • 48-hour time limit for resolving delays • System modifications instituted promptly • Reports from advising centers indicate fewer waivers and exceptions	PURPOSE: Self-reflection • Knowledge & skills acquired and applied • Additional applications • Short- and long-term gains TASKS: • Behaviors and sequence of actions • Roadblocks/mistakes to avoid • Guidelines • When/how to identify needed resources CRITERIA: • What will success look like? • How will you measure it? • Personal and team expectations.	PURPOSE: Safety protocol • Improve safety of facilities in Academic Success Center building TASKS: • Discuss feedback • Identify safety risks • Brainstorm options • Consider funding • Prioritize actions • Finalize safety report CRITERIA: • Safety report includes threats, opportunities, requests and topics for future consideration • Safety proposal submitted on time • Progress is measured during implementation of changes

[3] The planning was the focus of conversations between the author, instructors, and Associate Dean Sharon Jalene in the 2023-2024 academic year.

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Fig. 6 Reproduced from *TILT Framework for Student Support Personnel with Examples* by M.A. Winkelmes, 2018-2025, TILT Higher Ed Examples and Resources https://www.tilthighered.com/resources. Reprinted with permission.

The TILT Framework can guide colleagues' internal planning and external communications about non-academic programs and processes that support student success. For example, a registrar's office applied the TILT Framework first to plan internally and then to communicate to the broader institutional community a change that simplified the procedure and paperwork required for students arriving with postsecondary degree credit from other institutions (Figure 6, left column). Administrative leaders have found that colleagues they supervise can benefit from using the TILT Framework not only to assess their contributions to their group's mission but also to consider how the work they are doing supports their development of skills that advance their individual career trajectories, as illustrated in the TILTed performance review guidelines in Figure 6 (center column). Even a simple administrative meeting agenda can benefit from the TILT Framework. For example, a team of student-support personnel organized a building safety meeting agenda with TILT's tripartite structure (Figure 6, right column) (Gianoutsos et al, 2024).

3.6 Educational Development

TILT-focused and TILT-supported educational development work continues to emerge across six continents. Educational developers use the TILT Framework as a tool for designing sequences of academic development programming and single professional development events, and for assessing their effectiveness, not only in the U.S. but also in South Africa, Japan, and the Netherlands (Boye & Tapp, 2019; Gianoutsos et al., 2024; Hansen et al., 2019; Little & Overman, 2019; Olsen et al., 2019; Winkelmes et al., 2023). In hundreds of educational development workshops for teachers and student-support personnel from a variety of national and disciplinary academic cultures, TILT has been an effective framework for cross-cultural peer feedback about teaching materials. The TILT Framework supports implementation of additional evidence-based educational methods, like Universal Design for Learning strategies, that promote equitable, inclusive student success (Nave, 2021). Educational developers apply the TILT Framework to guide individual and group consultations, to review teaching materials and student-support protocols with colleagues, to train graduate-student instructors and student peer tutors, to structure class meeting observations and subsequent discussion of feedback for teachers, and to prepare student partners who offer feedback about learning experiences to teachers. Further, educational developers organize and facilitate communities of practice within and across postsecondary institutions that meet regularly to discuss their successes and challenges in using TILT with students (Bayraktar, 2024). As TILT practitioners share their experiences and wisdom, accounts of their examples proliferate through teaching development convenings, academic development conferences, peer-reviewed publications, doctoral dissertations (Bradley, 2023; Kane, 2023; Locks, 2023; McRae, 2021), newsletters, blog posts, webinars, and podcasts (Bruff, 2023; Cooksey, 2017; Kane & Mushtare, 2023; Nave, 2021; Watson, 2019).

Instructional designers who update and maintain institutional learning management systems (LMSs) have applied the TILT Framework to establish course platforms and communication structures that support instructors and students. For example, the office of Digital Education Programs & Initiatives adopted the TILT Framework to structure the LMS space for a required course for first-year students at Indiana University in Indianapolis. For both online and face-to-face courses, instructional designers have used the TILT Framework to align the organization of academic materials so that students encounter information about purposes, tasks, and criteria for their learning regularly. This structure is efficient for instructors and learning designers when they add course materials, and for students when finding those materials.

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3.7 Institutional Student Success Initiatives

For institutions, a large-scale student-success initiative focused on TILT is appealing for several reasons. First, TILT is an evidence-based process to support student success that involves a small adjustment to existing practices. Second, a small amount of transparency is associated with student success. Third, TILT is easily accessible and effective across many academic disciplines and co-curricular activities in postsecondary institutions around the world. Fourth, TILT generally improves students' learning, and the gains are sometimes greater for students who are at the highest risk of interrupting or stopping their postsecondary education. Fifth, the language of TILT is intentionally direct and jargon-free, making it an effective communication tool for collaboration among colleagues in many different roles and disciplines. Finally, TILT can be applied to academic development contexts beyond learning and teaching, like project planning, policy making, and large-scale strategic planning that involves stakeholders from across offices, disciplines, communities, and institutions (Winkelmes et al., 2016; Humphreys et al., 2019; Humphrey, 2021; Nasrollahian Mojarad & Cruz, 2022; Ojha et al., 2024; Richard et al., forthcoming).

Some institutional student success efforts seek to increase student persistence and completion rates by aiming TILT interventions at large numbers of incoming students in their first year of postsecondary study, like at Sam Houston State University (mentioned in section 3.5). At Washington State University, for example, a TILT initiative focuses on important capstone projects in required, introductory general education courses. At Northwest Florida State University, a TILT implementation includes writing courses required of first-year students. At Elizabethtown College in Pennsylvania, introductory courses across disciplines incorporate two TILTed academic assignment prompts. At the University of Nevada, Las Vegas, required first-year courses and introductory courses with large enrollments included two TILTed assignment prompts and supported students' persistence up to two years later, as described in section 2 (Calkins and Winkelmes, 2018).

Some departments or programs aim to increase students' sense of belonging and persistence in a chosen major field of study by involving TILT in a sequence of their required courses. At Monroe Community College in New York, improving the success and persistence of students studying health sciences was the goal of TILT implementations in two foundational courses: health sciences, and human anatomy and physiology. The positive results encouraged broader implementation of TILT (Cronmiller et al., 2022 and 2023). An introductory chemistry course at Millersville University in Pennsylvania TILTed each week's learning, and results included students' increased perception of chemistry's utility as well as their strong sense of belonging, especially for students from groups that are underrepresented in the field of chemistry in academia and industry (Davis, 2023). A project that aims to increase the number of Hispanic students who advance in the field of computer science (where they are currently underrepresented in the U.S. and the U.K.) incorporates inclusive practices, including TILTing assignment prompts, in the required introductory sequence of courses for students majoring in the field.

For colleagues and leaders from across various offices at an institution, TILT can facilitate their collaboration by offering a transparent planning process and vocabulary. Ten administrative units offering academic development at one institution used the TILT Strategic Planning tool (Winkelmes, 2017-2025) to intentionally design and deliver a coherent curriculum for academic development across the institution. Initially, their goals did not seem closely related because they described their work using professional languages and terms from their specific national accrediting and professional organizations: Quality Matters, the American Association of Collegiate Registrars and Admissions Officers, the Council of Writing Program Administrators, the National Council of Teachers of English, the Council for the Advancement of Standards in Higher Education, and the National Association of Student Personnel Administrators. Using the common language of TILT as a translation tool, the offices identified more shared purposes and criteria than they anticipated, and they recognized how their tasks overlapped. This allowed leaders to increase their offices' efficacy by eliminating repeated services and focusing resources on the unique services within each office. If

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purposes, tasks, and criteria were easy to identify across the ten offices, collaborative decisions about shared resources were more complex. The group relied on the TILT Strategic Planning framework (Winkelmes, 2017-2025) to support difficult decisions about resource sharing and reach an equitable plan for each office to

SUMMARY: The purpose is to **(PURPOSE:)** *establish permanent support for faculty development* by **(TASKS:)** *coordinating stakeholders, reducing workloads, running pilot programs and gathering data to demonstrate how faculty development directly advances UNLV's Top Tier aims*. The goal will be achieved when **(CRITERIA:)** *faculty development support has an annually recurring budget allocation from the university, with incentives for in kind contributions from the university's 14 schools.*

CONTEXT	PURPOSE	TASKS			CRITERIA
	Goals	Work (and Due Dates)	Who does it? Partners & Stakeholders	Resources	Measures of Success
The university lacks a faculty development support center, and existing faculty development support is scattered and incomplete.	Run, assess, and establish permanent budget-line support for faculty development services at the university, with incentives for additional support and involvement from the 14 schools.	Events in a pilot faculty develop-ment curriculum: • Fall orientations for faculty, grad and undergrad teaching assistants • Winter/summer institutes • Best Teaching Practices Expo Ongoing services/ programs: • faculty mentoring • teaching communities • online ed support • teaching awards	• Provost • President • Deans • Department Leaders • Faculty affairs • Undergrad ed. • Advising • Assessment • Library • Info technology • 1st-year program • Diversity intersection • Service Learning • Academic Success • Student Life, recreation • Writing Center	• Deans' nominations of Faculty Fellows • Provost's honorific appointments • Cross-unit financial support • Website • Survey software • Coordinated calendar of events • Hourly pay for grad student workers • Monthly email • Research funds • External grant funds	Improvements visible in: **Student success**: • Retention years 1-2 • Persistence & grad rates • student ratings of confidence, belonging, skill development • student engagement **Structural support for faculty development** • Campus space • Annually renewing budget-line funding • Grant application help **Faculty satisfaction / outcomes** • Faculty retention • Satisfaction surveys: national, internal • Teaching portfolios, • Self-reflection evaluations

Fig. 7 Summary of a single goal from the TILTed strategic plan for academic development at the University of Nevada, Las Vegas. Reproduced from *TILT Strategic Planning Framework with Examples: Institutional Plans* by M.A. Winkelmes, 2017-2025, TILT Higher Ed. Reprinted with permission.

contribute finances and employee hours to the shared work. To map out their plan, the group subdivided the tasks column in their TILT Strategic Planning worksheet into resources, partners, communication/outreach to stakeholders. Figure 7 illustrates just one of the group's shared goals: securing permanent institutional support for faculty development services. Separately, each office planned their unique, internal work using the same TILT Strategic Planning framework. Collaborators thus balanced their internal work with their collaborative work and benefited from the shared success. Each office could demonstrate how their collaboration contributed to increasing the institution's measures of success, like improved student persistence and teachers' satisfaction (Humphreys et al., 2019).

3.8 Multi-institutional Large-scale Student Success Implementations

Some multi-institution plans aim for all students to acquire skills they can apply in their careers – skills that leaders and employers in a state or region have identified as essential for their citizens. Other regional plans may aim to increase graduation rates and decrease equity gaps. For example, a group of 19 institutions in the Ivy Tech Community College system in the state of Indiana in the U.S. incorporated TILTed assignment prompts in a required introductory writing course as part of an effort to increase the success of financially constrained students (Tarr et al., 2019). A collaboration among academic developers and instructors at two postsecondary institutions in the state of California focused on how TILT might help to reduce achievement gaps in the largest postsecondary state education

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system in the U.S., comprising nearly half a million students (Magruder et al., 2019). With a similar goal to advance all students' success, the Washington State Board of Community and Technical Colleges coordinated an implementation of two TILTed academic assignments in one term in a common sequence of courses across 17 institutions granting two-year postsecondary degrees (Whetham et al., 2019). TILT's common vocabulary and simple structure support the metacognitive insights and reciprocal communication that characterize a healthy learning organization that can adapt and improve. This makes the TILT Strategic Planning Framework (Winkelmes, 2017-2025) an effective tool for facilitating large-scale student success implementations.

TILTed Summaries of Strategic Plans for State Postsecondary Systems

PURPOSE: Enhance students' skills	PURPOSE: Reduce & eliminate disparities in higher ed
• Increase student's competency in the key skills • Help students recognize value of key skills in daily life • Help students document proficiency key skills for employers • Engage stakeholders and communicate value of degree TASKS: • Highlight key skills explicitly in courses • Integrate key skills in existing programs, contexts • Employer collaboration CRITERIA: • Key skills more visible in curriculum, services, co-curriculars • Communication w/stakeholders around key skills is transparent • Stakeholders value the degree • Students recognize & demonstrate key skills for academia or employment	TASKS: • Enroll more underrepresented students; Adjust student support • Equity-minded pedagogy • Equitable opportunities: pathways, testing (bias), co-curriculars • Improve/connect data tracking & reporting • Underrepresented staff: hires, equity in union contracts, prof development • Increase funding for racial equity efforts CRITERIA: • Increase enrollment & completion & career success for underrepresented students • Increase underrepresented students' graduation rates • Higher sense of belonging measures: increase for underrepresented students • Compare equity of expenditures

Fig. 8 Reproduced from *TILT Strategic Planning Framework with Examples: Statewide Plans* by M.A. Winkelmes with colleagues from University of Kentucky System, 2017-2025, TILT Higher Ed. Reprinted with permission.

3.8.1 Planning and communicating

A challenge to widespread implementation of a student success plan across a consortium of postsecondary institutions is that the plan may feel so large and administratively driven that individual instructors, student-support personnel, students, educational developers, and designers don't see how their day-to-day work connects to it. The TILT Strategic Planning framework (Winkelmes, 2017-2025) can serve those who are seeking greater transparency about their roles. A plan that is dozens of pages long may not be understood by those who don't author it or study it in detail. But a transparent purpose/tasks/criteria summary in the form of a single image or paragraph devoid of jargon can support all participants. Two multi-institutional, statewide plans comprised in lengthy documents are TILTed by this author in Figure 8 (Kentucky on the left, Massachusetts on the right) (Kentucky Council on Postsecondary Education, 2022; Massachusetts Department of Higher Education, 2023). A TILTed summary like these can mitigate the hesitation or paralysis that results from feeling overwhelmed by the scope and details of a multi-institution plan. If a TILTed summary can be compiled for the entire plan, then the groups responsible for executing pieces of the plan see it's possible for them to TILT their own summaries. For example, Figure 9 depicts how two institutions developed TILTed summaries of their roles in a statewide plan (illustrated in the left half of Figure 8) to increase students' mastery of a set of key skills. One institution proposed to highlight the skills in gateway (required and pre-requisite) courses, while the other aimed to emphasize students' skill development in co-curricular activities. Within one day, institutional teams participating in a statewide institute applied the TILTed strategic planning process to define their part of the

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larger plan and then to communicate a single-sentence summary to all the teams, using the common language of TILT. This was a time-efficient way for participants from all the institutions to plan their role and to understand how other insti-
tutions in their consortium would contribute. Within and among institutions, each team and contributor can apply the TILT Strategic Planning Framework in a fractalized way to increasingly smaller, interrelated pieces of the plan to map out an effective approach for executing their portion of the project and monitoring its success. At each successive stage of specificity, a single image and a single sentence can be used to communicate the plan (Figures 9a and 9b).

EXAMPLE: Enhance Student Development of Essential Skills in Required/Gateway Courses

SUMMARY: The purpose is to **(PURPOSE)** *improve student success rates in gateway courses* by **(TASKS)** *highlighting the essential skills using the TILT framework in required gateway courses* and it will be achieved when **(CRITERIA)** *success (pass) rates have increased by at least 20%, the achievement gap for underserved students is reduced by 75%, and student surveys indicate transparency of skills in gateway courses and gains in student belonging, confidence, and metacognition.*

CONTEXT	PURPOSE	TASKS			CRITERIA
	Goals	Work (and Due Dates)	Who does it? Partners,Stakeholders	Resources	Measures of Success
• Gateway courses • Academic Support services	• Use TILT framework to identify essential skills in gateway courses: ENG, MATH, BIO • Educate/train academic advisors, tutors, and full- time instructors/faculty on TILT framework. • Measure impact	• Introduction of project to administration for support (by end of Spring term) • Introduce and train Assistant Deans (ADs) and Teaching & Learning Center (TLC) Director on purpose, task, and criteria of project (by August). • ADs & TLC Director will support instructors and student support staff to TILT essential skills in gateway courses (English, Math, Biology) • Faculty/staff communities of practice focus on TILTing skills (Spring) • Measure success	• Administration • Gateway Course Faculty • Students • Teaching and Learning Center, Director & staff • Distance Learning • Instructional Designers • Workforce developmt • Advisory Boards • Community Partners • Institutional data • IRB • Who else to involve?	• Instructional Designers • TLC Director • Associate Deans • Grant funding • Peer Tutors • Community Partners • TILT	• Gateway courses show at least a 20% increase in success rate (passing grades) • 75% reduction of achievement gap • Gateway courses and Academic Support services adopt evidence-based TILT practices • Transparency of skills within courses indicated by student surveys. • Student confidence, belonging, metacognition show gains on student pre/post surveys.

Fig. 9a Reproduced from TILT Strategic Planning Framework with Examples: Institutional Plans by M.A. Winkelmes, 2017-2025, Reproduced from TILT Strategic Planning Framework with Examples: Institutional Plans by M.A. Winkelmes, 2017-2025, TILT Higher Ed. Reprinted with permission.

EXAMPLE: Develop Students' Communication Skills through Co-curriculars

SUMMARY: The purpose is **(PURPOSE)** *to develop students' communication skills* by **(TASKS)** *training advisors & coaches to enhance students' awareness of communication skills in co-curriculars* and it will be achieved when **(CRITERIA)** *students meet proficient levels on the NACE Career Competencies evaluation survey, and employer surveys indicate at least a 50% increase in communication skills.*

CONTEXT	PURPOSE	TASKS			CRITERIA
	Goals	Work (and Due Dates)	Who does it? Partners,Stakeholders	Resources	Measures of Success
Co- curriculars led by advisors	• Advisors identify the communication skills and evaluate proficiency • Students articulate and document applicable NACE Career Competencies during interviews and on their resumes	• Career Development and Student Activities team members host two fall workshops for Advisors (September) • Advisors and coaches will target corresponding communications skills in co-curriculars (by end of September) • Career Development will provide resources to advisors, coaches	• Career Development • Advisors • Student Activities • Advisors • Coaches	• NACE Career Competencies resources • Resume resources • Staff and advisors time and space to meet	Halfway measures: • resumes and work samples demonstrate communication skills • +50% communication skills on NACE Survey • work and resumes show commun. skills Final measures • +50% internships • +50% employed grads

Fig. 9b Reproduced from *TILT Strategic Planning Framework with Examples: Institutional Plans* by M.A. Winkelmes, 2017-2025, TILT Higher Ed Examples and Resources. https://www.tilthighered.com/resources. Reprinted with permission.

3.8.2 Implementing, assessing, and improving efficacy

A TILTed strategic plan and summary for each group of implementers supports a whole community's metacognition about their participation by tying everyone's specific contributions to expected outcomes or criteria (Figure 9, right column, top and bottom). This encourages frequent, real-time formative assessments, and shared feedback that communicates small indicators of potential problems as soon as they emerge, helping the community to avoid any widespread failings. TILTed communication about how stakeholders' feedback has informed corrections to the plan can motivate other participants to assess progress and adopt improvements. Just as repeated exposure to the TILT Framework for Students (Figure 1) enhances students' facility to evaluate and improve their ongoing work, so repeated use of the TILT Strategic Planning framework (Figure 9) can provide colleagues with a process for assessing and adjusting their work. The enhanced efficacy from informed feedback and real-time adjustments can also benefit individuals' career development and their facility to collaborate throughout the system. Regular communication about criteria that measure progress toward their shared purpose can heighten awareness of individual efficacy and motivate self-reflection on one's career growth.

3.9 Scholarship of Teaching and Learning (SOTL)

Foundational TILT-focused studies (Winkelmes, 2013; McNair, 2016, Winkelmes et al., 2016; Calkins & Winkelmes, 2018; Winkelmes et al., 2019) and more recent publications (including Akella et al., 2022; Brown, 2023; Ojha et al., 2024) gathered information about the impact of TILT on students' learning at institutions across the U.S. and around the world. TILT has been described as a Mega scholarship of teaching and learning (Mega-SOTL) project due to the large scope of some TILT research studies (Nasrollahian Mojarad & Cruz, 2022). The foundational TILT studies of 2016 and 2018 reviewed in section 2 of this chapter relied on subsets of data that the TILT Research Team gathered from tens of thousands of students at hundreds of postsecondary institutions in 12 countries, most of it from U.S.. The 2024 study of TILT's impact on computer science students described in section 2 and the multi-institutional implementations of TILT discussed in section 3.8 gathered student data across many institutions.

The TILT Strategic Planning Framework (Figures 7, 9) has been used to help plan ongoing scholarship of teaching and learning (SOTL) projects of all sizes, like an investigation of the impact of TILT on reducing students' stress levels led by Professor Isabella Maita at the University of California in San Diego, and assessment of TILT's impact on teachers' practices at North-West University in South Africa, and communities of practice like one coordinated through the Teaching and Learning Center at Dutchess Community College in New York. For such projects, the TILTed Strategic Planning Worksheet might resemble the example in Figure 10. Criteria for the success of a TILT implementation might include metrics like student persistence from year to year in a program or major, drop-out or stop-out statistics, grades, mental health indicators, graduation rates, teaching practices, instructor satisfaction and retention, and employment after degree completion. Future research might focus on longer-term effects of TILT on graduates' employment, lifelong learning practices, and socio-economic status, or engagement with alumni and local community collaborators

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and businesses, or national leaders' support for postsecondary education through policies and funding.

EXAMPLE: A community of practice implements TILT and measures the impact

SUMMARY: The purpose is to **(PURPOSE:)** *explore the impact of transparent instruction on students, teachers, and staff* by **(TASKS):** *incorporating transparent learning & teaching practices* and it will be achieved when **(CRITERIA:)** *student success measures and teacher/staff satisfaction measures show improvement*.

CONTEXT	PURPOSE	TASKS			CRITERIA
	Goals	Work (and Due Dates)	Who does it? Partners & Stakeholders	Resources	Measures of Success
teachers and student support personnel using evidence-based practices to improve student success	• Apply TILT to gateway courses to improve student success and teacher satisfaction • Instructors of gateway courses incorporate TILT into 2 assignments • Measure and analyze impact on: ○ Student success ○ Teacher/staff satisfaction	• Provide TILT training for instructors and student support personnel • Gateway courses incorporate TILT into 2 assignments • Community of practice meets 3x • Gather data (performance, persistence, surveys, etc.) • Measure and analyze impact on: ○ Students ○ Teachers ○ Staff	• Academic developers train faculty, staff • Teachers and staff apply TILT with students • Community of practice participants and facilitators meet • Researchers design, administer surveys and gather/analyze performance data • Students and teachers respond to surveys • Institutional Research office approves research plan, tools	• Academic developers • Teachers, staff • Meeting facilities • Researchers • Institutional data access ○ Course pass and completion rates ○ Grades ○ Persistence • Data analysts • Secure data storage space • Institutional Research staff • Existing survey data benchmarks on student confidence • Survey software	Improvements visible in: STUDENT institutional data: • course pass rates • degree completion rates • continue in field rates • persistence in school rates STUDENT survey data • reflective learning processes • confidence • belonging • time management • mental health TEACHERS & STAFF • nature of feedback • self-efficacy

Fig. 10 Reproduced from *TILT Strategic Planning Framework with Examples: Institutional Plans* by M.A. Winkelmes, 2017-2025, TILT Higher Ed Examples and Resources. https://www.tilthighered.com/resources. Reprinted with permission.

4. Limitations

TILT's benefits for students have been achieved most broadly and efficiently when groups of teachers, student-support personnel, educational developers, and administrators collaborate to apply TILT to academic assignment prompts in courses where students struggle, and in introductory courses, particularly required ones. These are contexts where TILT's impact on confidence, belonging, persistence, skill development, and metacognition can help to retain as many students as possible. Fewer publications about TILT focus on implementations in upper-level courses and co-curricular learning experiences. For advanced students, transparency around methodologies and course design seem to be more helpful than transparency around assignment prompts because most students in upper-level courses are familiar with how to approach academic assignments in the discipline (Winkelmes 2013).

For instructors encountering TILT for the first time, knowing how much TILTing is enough can seem unclear. For each group of students, the adequate amount will differ. When students reflect to

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their instructor that they understand the learning goals and process for an upcoming assignment as the instructor intended, that they can judge what successful work will look like, and that they have the resources and readiness needed to complete the work, then the instructor knows they have achieved transparency. TILTing with students (through reciprocal communication about purposes, tasks, and criteria for their upcoming work) once near the beginning of the course and once near the middle was enough to be effective in foundational TILT studies (Winkelmes et al, 2016; McNair et al., 2016; Calkins & Winkelmes, 2018). However, TILTing only once near the end of a course may be less effective if it involves changing a process that students have come to expect throughout the course.

Excessive TILTing can occur the first time an instructor aims to make an assignment prompt more transparent for students. Some teachers feel a responsibility to share all of the unspoken information about an assignment before students begin working, including many details about how the current learning will connect with future learning experiences in the discipline, and how the proposed tasks are grounded in disciplinary methodologies that have evolved over time. Others may wish to include all details in advance for a long-term student project. This quantity of information can overwhelm students and it obscures the tasks at hand, making them no longer transparent, relevant, and accessible to students. While experienced students and graduate or professional students pursuing advanced degrees may welcome such detailed contextual information, introductory or intermediate level postsecondary students can work more effectively when they focus on a smaller number of tasks and a controlled quantity of information at one time. For this reason, teachers will often divide larger projects into smaller, scaffolded, sequential pieces, to help less experienced students focus on developing one or two new skills at one time before moving on to perform work that requires additional capacities.

Some instructors and student-support personnel who are new to TILTing with their students seek a specific protocol to follow. But not all teachers or mentors TILT in the same way. Foundational TILT studies intentionally avoided a rigid protocol, recognizing that teachers would apply TILT Frameworks in a way consistent with their existing instructional practice (Winkelmes, 2013; Winkelmes et al., 2016; Calkins and Winkelmes, 2018). Those studies indicate what teachers and student-support personnel in a variety of postsecondary education contexts can expect when they adopt TILT at their own discretion. Numerous examples of how teachers and student-support personnel practice transparency can be found in publications in this chapter's references section and on the TILT Examples and Resources webpage (https://www.tilthighered.com/resources), along with additional recommended transparent practices, including transparency around grading, class agenda construction, gauging students' understanding, and pedagogies.

Instructors can question whether TILT makes academic work too easy for students, because it often elevates the quality of students' work. Some challenging questions and problems can motivate students and stimulate their intellectual development. But other difficulties can discourage students' motivation and even diminish their success. For example, difficulty understanding academic expectations, or locating the necessary resources to do the work, or confusion about improving the quality of their work can result in students' lost working time, self-doubt, and diminished sense of belonging. These are threats to students' persistence. Lack of belonging and difficulty of coursework are two of the most common reasons that students surveyed in the U.S. consider stopping their postsecondary education (Gallup & Lumina, 2024). The quality of students' work improves with transparent instruction because students can spend all of their working time doing their best quality work. Transparency is needed when teachers wish to see the best work students are capable of so they can design challenges to push students' achievement further. Without transparency, many students spend a large portion of their time figuring out how to approach the work and/or how to acquire the needed resources (Berrett, 2015). This reduces the amount of time they can spend doing the work, limits their work quality, and compromises a teacher's ability to challenge students effectively.

There are some instances when full transparency is not desirable precisely because it reduces confusion and uncertainty. In creative disciplines like performing and studio arts, engineering or

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medicine, or learning exercises where creative approaches and new results are an intended outcome, causing students to struggle through confusion may benefit their learning and advance the state of research. In these cases, instructors can support students' persistence by offering transparency about the value of the struggle. Students should know before they begin working if the purpose of an academic exercise is for them to experience barriers and confusion that may inspire their creative solutions. Students who know in advance that these are the conditions of the learning experience are less likely to question if they belong in this context and more likely to persist when the process is unclear.

Spending time to establish transparency by incorporating students' feedback in a conversation, whether in-person or asynchronously online, can be a concern for instructors who wish to spend all their time teaching new material and concepts. Teachers find that investing a little time in a TILTed conversation with students about upcoming work (perhaps 5 – 10 minutes in a class meeting or in short, scheduled asynchronous communications) actually reduces the amount of time they spend later on several activities: 1) explaining the work to individual students, 2) re-teaching material that was unclear to students, and 3) grading and offering feedback on students' completed work (Winkelmes et al., 2015). Furthermore, when transparency supports students' efficient achievement of the best work they can do, teachers can advance through a course plan more quickly and provide further learning opportunities for students.

While TILT can reduce significant challenges to postsecondary students' success, there are many barriers that TILT cannot remove. To the extent that students' learning is improved by greater academic confidence and sense of belonging, clear understanding of expectations and approaches, higher work quality, enhanced skill development, metacognition, and their awareness of the transferable value of what they are learning, TILT is effective in boosting students' success. TILT helps to reduce the main reasons that students surveyed in the U.S. consider stopping their postsecondary studies: "emotional stress," "coursework was too difficult," "don't feel I belong" (Gallup & Lumina, 2024). But TILT cannot alleviate serious threats to students' persistence and success presented by financial hardship and health concerns that students identified in the same survey: "cost of the degree or certification program," and "personal mental health concerns." The low-cost efficacy of TILT should never be used as an excuse for institutions to invest inadequate resources to combat these threats to student success.

5. Conclusion

The TILT Framework offers a simple, easily applicable, reciprocal feedback process to support the knowledge acquisition, skill development, persistence, metacognition, and belonging that characterize lifelong learners and healthy learning organizations that adapt and improve. As postsecondary education has evolved over the past decades to incorporate changes like online and blended modalities and AI, the three-part TILT Framework has helped teachers, increasingly diverse populations of students, student-support personnel, educational developers, administrators, and leaders to design, communicate, and revise learning experiences in a transparent way. TILT increases students' confidence, sense of belonging, metacognition, skill development, persistence, work quality, grades, and completion rates of assigned work (Akella et al., 2022; Brown, 2023; Calkins & Winkelmes, 2018; Copeland et al., 2018; McHenry & Hoyal, 2024; McRae, 2021; Ojha et al., 2024; Winkelmes et al., 2015; Winkelmes et al., 2016). Learning gains from TILT are sometimes larger for those students who are at the highest risk of discontinuing their education: first-in-family students to attend a postsecondary institution, financially constrained students, and ethnically and racially underrepresented students (Winkelmes et al., 2016, Calkins & Winkelmes, 2018; Ojha et al., 2024). Several characteristics of TILT make its implementation appealing: the simplicity of the tripartite TILT Framework (purposes, tasks, and criteria), the small amount of change required to achieve significant gains for students, the applicability across academic disciplines and cultures and even co-curricular

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postsecondary contexts, the potential for fostering connection and planning collaborations to advance student success within and among postsecondary institutions, and the adaptability of TILT's structure and language to communications among a wide spectrum of stakeholders.

Teachers, students, and student-support personnel can support their reciprocal, transparent communications about students' learning with several TILT tools: the TILT Framework for Students (Winkelmes 2016-2025), the Transparent Assignment Design Template for Teachers (Winkelmes, 2012-2025), Transparent Equitable Learning Frameworks (Winkelmes, 2021a-2025; Winkelmes, 2021b-2025), and the TILT Framework for Student Support Personnel with Examples (Winkelmes 2018-2025). These TILT frameworks address and reduce systemic inequities and enhance students' awareness of the transferable value of their learning, the quality of their work, their self-efficacy, and how additional tools (including AI) will support or diminish their learning. Repeated TILTing can enhance students' capacity to reflect on the purposes, tasks, and criteria for any work before they undertake it. Teachers, advisors, student-support personnel, and administrators who experiment with TILT and observe its impact on students in postsecondary degree programs continue to share insights about their applications of TILT on six continents through publications in peer reviewed journals, conference papers, and books, as well as websites and podcasts (i.e. Akella et al, 2022; Brinkman, 2024; Brown, 2023; Bruff, 2023; Cooksey, 2017; Cronmiller et al., 2022; Croyden & Wells, 2021; Gianoutsos et al., 2024; Kane & Mushtare, 2023; McNair et al., 2016; Nave, 2021; Sipes et al., forthcoming; Stanford Center for Teaching, 2023; The Ohio State University Teaching & Learning Resource Center, (2024a and b); Waqar, 2024; Watson, 2019; Winkelmes et al., 2019; Zald & Guittar, 2024).

Educational developers and institutional leaders who support evidence-based teaching practices not only share TILT Frameworks with their colleagues but also adopt additional TILT tools. To plan programs, curricula, and communications about them, they apply the TILT Course Sequencing Worksheet (Winkelmes, 2015-2025) and TILT Strategic Planning Framework (Winkelmes, 2018-2025). TILTed strategic planning supports collaborations among colleagues in contexts as small as individual performance reviews and as large as multi-institutional TILT implementation and scholarship of teaching and learning projects (Emekako & Winkelmes, 2024; Gianoutsos et al., 2024; Nasrollahian & Cruz, 2022; Winkelmes et al., 2019; Winkelmes et al., 2023).

In a variety of postsecondary contexts considered in this chapter, the TILT Framework advances academic development by supporting students, teachers, mentors, student-support personnel, administrators, educational developers, and institutional leaders to increase students' success through reciprocal, transparent communication about the purposes, tasks and criteria for their work. Further, TILT offers a way to communicate the value of postsecondary education transparently to the many collaborators and supporters upon whose participation the enterprise of higher education depends.

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