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Personalized Feedback in a Virtual Learning Environment

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Abstract

The immediate shift to virtual instruction during the spring of 2020 forced educators worldwide to quickly adopt distance learning philosophies, technologies, and pedagogies. This lean adoption of virtual learning tools saw an unprecedented number of educators embrace new modalities of providing feedback to students. This paper explores those modalities and recommends that supervisors help educators situate personalized student feedback within the context of self-determination theory to ensure students' needs for competence, autonomy, and relatedness are not abandoned in a virtual learning environment characterized by isolation and loneliness.

Keywords

student feedback; virtual learning; distance learning

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Introduction

Feedback thrives on errors (Fisher et al., 2016), and as educators, we fully understand that feedback is a powerful mechanism that drives student learning. However, feedback in a virtual learning environment can be sidelined with errors. Inaccurate Zoom links, timed-out videos, slow loading times, incorrect sharing settings, scrambled audio recordings, and incomprehensible background noise are some self-inflicted errors that can curtail effective virtual student feedback. Additionally, less-than-ideal learning conditions at home due to inadequate childcare or supervision can also impair remote learning experiences for K-12 students (Townsley, 2020). With an effect size of 0.75, feedback is among the top 10 influences on student achievement (Fisher et al., 2016). By itself, it is ineffective, but coupled with a practical context for learning, personalized feedback is "most powerful when it addresses faulty interpretations" (Hattie & Timperley, 2018, p. 82). This paper aims to illustrate three practical contexts for personalized feedback in a virtual environment and explain how they address misconceptions in student learning.

The Personalization of Feedback

Since the outbreak of COVID-19 in 2020, personalized student feedback has been one of the most critical instructional tools for virtual instructors (Means & Neisler, 2021). For students, personalization allows feedback to be more accessible and acceptable. "Personalization is the key driver for giving students feedback in a more conversational and personable tone that makes the content more accepting and constructive" (Steele & Holbeck, 2018, p. 1). Additionally, coupled with feedback personalization is feedback timeliness. The shift to virtual learning created more opportunities for students to receive prompt, real-time feedback that can establish immediacy and reduce isolation time for virtual learners (Martin et al., 2020). This reduced isolation time is achieved by utilizing several Web 2.0 tools that are easily embedded into an online LMS so students can receive instant feedback through formative or summative assessments (Steele & Holbeck, 2018). Finally, the pivot to virtual learning forced teachers to develop synchronous learning opportunities to provide detailed student feedback about their progress. While asynchronous courses allow students to move through the coursework at their own pace, live, synchronous sessions present instructor opportunities for direct instruction, social presence, and elaborative feedback (Lowenthal et al., 2017; Steele & Holbeck, 2018). Thus, virtual office hours have emerged as an effective tool for offering personalized feedback and addressing student misconceptions.

The Internalization of Feedback

Feedback is conceptually defined as "information provided by an agent (e.g., teacher, peer, book, parent, self, experience) regarding aspects of one's performance or understanding" (Hattie & Timperley, 2007, p. 81). In simpler terms, feedback is a message from a sender to a receiver (Van der Kleij et al., 2017). In education, these messages can be formal or informal. However, the power of feedback lies in the messages sent from teachers to their students or students to their peers that can significantly influence the scope of one's confidence and self-efficacy (Hattie & Timperley, 2007). By design, feedback has an intuitive connection to our psychological needs

for competence and mastery so that we can frame its application in a virtual learning environment through the lens of self-determination theory.

Self-determination theory proposes the idea that self-determined individuals have causal agency. "They act with authority to make or cause something to happen in their lives" (Wehmeyer & Field, 2007, p. 3). They are the catalysts for change and are the primary changemakers in their lives. Competence, autonomy, and relatedness are basic psychological needs and form the foundation of a self-determined person (Yu et al., 2018). Therefore, personalized feedback for self-determined students is how they perceive their self-competence. In a sense, feedback can confirm or deny a student's opinion of themselves, so educators have a moral obligation to provide it responsibly. Personalized feedback can quickly become internalized because of our innate desire for success and affirmation. These messages can inform students' belief in their potential to be exceptional. For those virtual students lacking the in-house support systems of traditional brick-and-mortar instruction, personalized feedback can lead to "enhanced self-efficacy and attributions that the feedback is deserved and earned" (Hattie & Timperley, 2007, p. 102). In the following sections are several personalized feedback strategies educators can use to reinforce their virtual students' messages of self-competence, self-efficacy, and self-worth.

The Gamification of Feedback

Gamification refers to using video game elements in non-game services and applications (Deterding et al., 2011). Usually, this includes classroom competitions, ranking systems, or other graphical illustrations that showcase student mastery and competence. Additionally, gamification can incorporate narrative storytelling or incentivize behavior through badges and rewards (Hanus & Fox, 2015). The implication is that using competitive elements inside a virtual classroom can increase student engagement and offer insight into student performance. These game-like elements can also offer information about individual success within a task (Atali & Arieli-Atali, 2015). Placed in a self-determination context, gamification addresses all three components of competence, autonomy, and relatedness because of the meaningful integration of play and design thinking within a virtual learning environment (Hung, 2018). Su and Cheng (2015) demonstrated that gamification could increase student motivation and improve learning outcomes. For educators, when designing "experiences that are inspired by games, there is potential for students to be engaged in their learning and persist in problem-solving, much as they would during actual gameplay" (Gressick & Langston, 2017, p. 110).

Closely related to the traditional, competitive view of gamification, the most common style is the badge or credential system (Indriasari et al., 2020). This brand of gamification using points, badges, and leaderboards is not only the most common form but is also the most cost-effective, accessible, and applicable form for educators (Huang et al., 2019). Unfortunately, the depth and breadth of a fully responsive credential program are limited to the specific learning management system (LMS) or learning platform purchased by the institution. Nonetheless, students can earn badges or credentials when they complete assignments, contribute to classroom discussions, or interact with other course members.

The Student Utilization of Feedback

COVID-19 forced educators worldwide to confront the challenges ingrained in our educational systems and re-evaluate our approaches to instruction. Notably, in the virtual environment, educators can design student-centered approaches that empower students to be facilitators of their learning through student-developed feedback. Leveraging student-developed feedback grants student agency, aligns with self-determination theory principles, and centers curriculum and instruction in the online classroom. "Student-created feedback provides students with additional opportunities to autonomously create explanations and justifications they deem valid and appropriate" (Yu et al., 2018, p. 397) for formative or summative assessments. Additionally, student-developed assessments cultivate a sense of belonging and community in a space often characterized by isolation and alienation. When educators adopt this strategy, students design feedback specifically configured for the test questions they develop. Devising the test questions, the test answers and the individual feedback responses on the test further cultivates student empathy, compassion, and understanding, all of which connect to our psychological needs for autonomy and relatedness. Educators can artfully use strategies like this to add layers of complexity, interactivity, and engagement in their virtual classrooms.

The Authenticity of Feedback

In a virtual setting, web-based tools can be optimized to reduce the transactional distance between teachers and students. Conceptually, transactional distance refers to a "separation and a psychological and communications space to be crossed" (Moore, 1993, p. 22). This distance can be bridged by a variety of appropriate tools which can solidify instructor presence and authenticity while creating interactive learning experiences for students (Parenti, 2013). However, Keaton & Gilbert (2020) suggest that teachers should include audio and video-based feedback tools to make an authentic connection with their students despite not being in their immediate presence. The flexibility of an online learning environment can offer students the "potential for more self-directed learning opportunities and multiple levels of engagement" (Marteney & Bernadowski, 2016, p. 186). To this end, audio and video-based feedback can provide the needed level of engagement for our virtual students to feel connected.

Audio-based feedback refers to educators recording themselves and delivering individualized reactions to students. Most people can talk faster than they can write, so audio-based feedback is advantageous to educators because the responses can be specific and elaborate (McKeown et al., 2015). Additionally, audio-based feedback can heighten student self-confidence, increase the scope of detailed feedback, and can decrease response misinterpretation (Sipple, 2007). The strength of audio-based feedback lies in its replay value because "there is power in consistent individual feedback in which students listen and respond" (McKeown et al., 2015, p. 558) to instructor prompts.

Video-based feedback allows students to engage with course content and objectives. Video-based feedback is a hallmark of exemplary teachers, resulting in students feeling like their teachers are going above and beyond the basic teaching requirements (Martin, 2019). Similar to audio-based feedback, the strength of video-based feedback lies in its accessibility. Video files, like audio files, form a permanent record and can be replayed at the students' convenience at any

time (Crook et al., 2012). Embedded feedback videos not only benefit currently enrolled students but will also benefit future enrolled students. From that perspective, videos can be permanent and sustainable solutions for students' content-related questions (Underdown & Martin, 2016). Lastly, the affective quality of video-based feedback produces much-needed verbal and emotional cues that are missing from traditional text-based feedback (Ketchum et al., 2020).

The Supervision of Feedback

For school leaders, personalized feedback is a strategy their teachers can use to promote social connectedness during times of isolation and uncertainty (Bagwell, 2020). The flexibility of virtual learning allowed administrators to emphasize content mastery over content completion. However, instructional supervision in an online learning environment can be complex (Brock et al., 2021). COVID-19 made it clear that school leaders must grasp the competencies required for virtual leadership (Azukas, 2022). Due to the pandemic, school leaders faced new challenges, such as virtual learning, virtual evaluation, and virtual instructional leadership (Westberry et al., 2021). Principals had to adjust to leading in a blend of virtual and hybrid school settings while conducting virtual walkthroughs and providing equitable learning opportunities for all students (Lalas & Strikwerda, 2021; Pollock, 2020). Low student attendance, low motivation, low engagement, student apathy, and incomplete assignments contributed to teacher burnout and frustration during the pandemic (Lalas & Strikwerda, 2021). Thus, virtual administrators can use feedback to entrust self-competence, self-efficacy, and self-worth to their teachers, maintain high academic expectations, and mitigate those pandemic-related instructional issues. School leaders can encourage educators to focus on collaborative and compassionate learning where grades are not the only indicators of learning (Lalas & Strikwerda, 2021). Fortunately, the flexibility of feedback allows teachers to do just that. Accepting audio, video, or text-based submissions from students helps demonstrate their progress toward learning goals instead of their ability to complete content-related tasks and activities (Townsley, 2020).

The Limitations of Feedback

Unfortunately, there are some considerable drawbacks educators need to be mindful of before adopting these strategies. For educators, creating audio or video-based feedback can be tedious and labor-intensive, especially if there is unfamiliarity with the production software. Furthermore, crafting personalized videos may not be a priority for educators with many other competing duties, interests, and pressures on their professional time (Crook et al., 2012). Secondly, videos may exacerbate student anxiety due to unforeseen technical difficulties. Additionally, gamification may suffer from a lack of funding, staff support, clear directions, and developmental appropriateness (Sitra et al., 2017). As a result, video-based feedback may demonstrate decreasing returns if the proper technological supports are not in place.

Lastly, although students received district-issued devices to support virtual learning during COVID, many devices broke, systems received limited funding, and children were left unsupervised in this use of technology (Hill & Reimer, 2022). Even if students received a device, internet service was not guaranteed. Due to the COVID-enlarged digital divide, historically marginalized communities may have diminished access to technological tools that support distance learning. (Arias, 2020). When schools closed during the initial shutdown of the

pandemic, roughly 55 million K-12 students had their school year disrupted (Bacher-Hicks et al., 2020). According to the Institute of Education Sciences (Berger et al., 2022), 77% of public schools shifted to distance learning formats. However, only 4% of public school principals reported that all of their students had home internet access (compared to 58% of private school parents). To support students lacking internet access, approximately 61% of public school principals responded that their school sent hotspots or other devices to students at home, compared to 9% of private school principals (Berger et al., 2022). Ultimately, feedback is not a priority for families lacking the infrastructure for online instruction.

Conclusion

In conclusion, personalized student feedback is an essential strategy for educators. However, without traditional in-school support systems, virtual teachers need to be more innovative in publishing and disseminating feedback in a virtual learning environment. Centering this practice through the lens of self-determination theory, providing personalized student feedback through gamification, audio/video technologies, and student-centered approaches can increase student achievement and engagement and satisfy their basic psychological needs for autonomy, competence, and relatedness. Virtual teachers and administrators can offer effective feedback within an appropriate learning context. However, educators may need to consider that personalized feedback entirely too reliant on technology can be vulnerable to outside issues, so incorporating conventional text-based feedback is still a practical option.

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