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Birch, Heather J. S. "Using a Motivational Typology to Understand and Respond to Disruptive Behavior." *Journal of Online Learning Research* 8, no. 3 (2022): 369-391.

USING A MOTIVATIONAL TYPOLOGY TO UNDERSTAND AND RESPOND TO DISRUPTIVE BEHAVIOUR

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This case study is about understanding disruptive students who are motivated by a psychological need to invoke change in a learning space. Marczewski's User Types Test, a typology for classifying both intrinsic and extrinsic motivational tendencies, and based on Self-Determination Theory, was administered to 14 participants, aged 9 through 15, to determine their User Type profile; one participant emerged as a Disruptor. The semiotic signs created by the Disruptor in an online learning platform were collected and analyzed to determine the unique behaviour patterns of a Disruptor, in contrast with Marczewski's other User Types, including Philanthropist, Achiever, Socializer, Free Spirit, and Explorer. Implications for online instructors include understanding why Disruptors interrupt, interrogate, and intimidate, and possible strategies for responding, including nudging toward positive disruption, designing for Disruptors, and acknowledging and celebrating disruption in cases where it may facilitate (and not hinder) learning.

INTRODUCTION

Facilitating an online learning environment where all learners are positively engaged is complex, in part due to learners' various motivational tendencies. Some students may be motivated to disrupt the online learning space, seeming to thrive on interruption, interrogation, or intimidation of fellow students or the teacher. An online instructor might secretly wish for a disruptive student to drop their class, or at least, to be absent on occasion. Alternatively, an educator who understands that certain students have an inherent need to be disruptive can: 1) understand why a disruptor is motivated to act in disruptive ways; 2) nudge disruptors toward positive disruption

and away from negative disruption; 3) design the learning environment to include opportunities for positive disruption; and 4) identify and celebrate positive disruption. The Disruptor User Type is one of six types accounted for by Marczewski's User Type Hexad test. This 24-item survey tool, which was filled out by the participants in this study, is based on Self-Determination Theory (Deci & Ryan, 2008b), and is well-suited to helping teachers make instructional design decisions that differentiate for the variety of User Type motivations of their students. This qualitative case study focuses particularly on one of Marczewski's User Types—the Disruptor—and features music students ages 9 through 15 ($n=14$) who used a mobile app designed to facilitate socially engaged music learning for 20 weeks. Depending on their User Type, learners were motivated differently by various gameful elements in the mobile learning platform including learning teams, tutorial videos, sharing knowledge, badges and achievements, a leaderboard, challenges to learn new skills and knowledge, creativity tools, replayability, and a social network. Students in this study were not blamed or judged for having different motivational types or being motivated by different aspects of the learning environment. Rather, different motivations for engaging in learning were acknowledged, and sought to be understood, as a means of providing educators with an awareness of how to recognize and empower differently motivated learners, with an emphasis on disruptive learners, in particular.

This article is meant to support online instructors of any content area as they think about course design and pedagogical strategies which can promote and facilitate the engagement of all learners, no matter their motivational tendency. One specific motivational tendency, which is the tendency toward disruption, is distinctly different from other tendencies, and has the potential to disrupt learning. Therefore, intentional understandings and actions may be necessary to support individuals who tend to disrupt in an online course. When the participants in this study completed the User Type test, the results showed half of the participants strongly identifying with the Philanthropist User Type; most others identified with the Achiever, Socializer or Free Spirit tendency. One participant identified as a Disruptor. Analysis and rich description of the audio recordings and posts created by the single Disruptor in this study, are contrasted with the creations of his peers, and ultimately provide insight into the motivations of Disruptors, bringing to light ways that instructors might respond to disruption in the online learning environment.

The context of this research study is a mobile platform designed to facilitate music learning, although neither the platform type nor learning content area are the focus of this writing. Rather, the focus is on examining how, when students are asked to learn any content in an online space, their engagement with that content is impacted by their motivational tendencies.

One approach to facilitating engagement in an online course is to add game elements to the course structure. The learning context described in this article was set up as a gameful atmosphere, including a social network newsfeed and the opportunity to earn badges and achievements that were publicly shared within the learning community. Research about whether intentionally gamifying courses positively impacts engagement or achievement is inconclusive (Mora et al., 2018; Oliveira et al., 2020). But any online course, whether it is intentionally gamified or not, might have certain game-like aspects. For example, the earning of grades or marks is somewhat like earning points in a game. If all students have a variety of motivational tendencies, and their engagement in learning is impacted by those tendencies, (as the case will be made), then the applications derived here and described in the Discussion section below, about how instructors might understand, nudge toward, design for, and celebrate different motivational tendencies, will be applicable in the case of any online course.

Each student in an online course will respond differently to various aspects of the course structure and design. Insight into these differences is provided by Marczewski's (2015) six User Types. The six User Types apply broadly to any person who participates in a gamified system of any sort, including an online course. Marczewski's User Types are an appropriate framework for considering: 1) the basic psychological human needs that facilitate the motivation to learn; and 2) the distinctive ways in which individuals have propensities toward, or favour one of three basic psychological needs. The six User Types include: Philanthropist, Socializer, Free Spirit, Achiever, Player, and Disruptor.

Since the Disruptor is the rarest tendency, appearing in approximately 3% of the general population, (Şenocak et al., 2021; Tondello et al., 2018), instructors are unlikely to exhibit this tendency, and as such, may have no firsthand understanding of how this tendency impacts engagement with learning. On the other hand, if an instructor does happen to resonate with the Disruptor tendency, they may already understand how the desire to disrupt can be fulfilled in productive ways, and may have intuitively adjusted their practices and course designs to accommodate learners who are motivated as they are. Instructors with strong Achiever, Socializer, and Philanthropist tendencies may lack an awareness of the motivational foundation behind a Disruptor's need to disrupt, and therefore, may benefit from this article's motivationally-informed approach to addressing disruption in a learning context.

Notably, Disruptors are not so disengaged with learning that they disappear; motivating students to show up to the learning space is not the consideration of this article. The research questions considered here include, 1) What are the motivational tendencies of students in an online learning

platform, according to Marczewski's User Types Hexad Test? and 2) What are the behaviours of a Disruptor in an online learning context which exemplify the Disruptor tendency? Answers to these two research questions lead directly to implications for instructors who want to understand and address disruptive behaviour within an online learning community.

LITERATURE REVIEW

Disruptive Behaviour

Results of research studies about disruptive student behaviour in various learning contexts, including face-to-face, blended, and online contexts, can inform instructors' responses and understandings. For example, in face-to-face learning environments, instructors' strong competence in the subject area they are teaching, and ability to present content in interesting ways can reduce students' disruptive behaviours (Granero-Gallegos et al., 2019). Within blended learning environments, developing teacher presence (Stevens & Rice, 2016), and conducting ongoing, timely assessment of student learning and responsively adapting pedagogy and curriculum (Hanny et al., 2021), have been shown to reduce off-task student behaviour. In fully online learning contexts, students' self-efficacy, relevance of the topic being studied, and decrease of negative peer influence are all factors which can minimize disruptive behaviour (Bru, 2006). This paper promotes an understanding of Marczewski's User Types, and in particular, the Disruptor User Type, as a means of informing instructors about possible ways to respond to the disruptive behaviour of students in online learning spaces.

Hexad Test

Marczewski's (2015) User Types Hexad Test is a 24-item survey tool which can reveal the motivational tendencies that a person has when interacting within systems such as online learning environments. The tool is based on Self-Determination Theory, thereby revealing results that demonstrate how strongly a person tends to be motivated by three basic psychological needs, including autonomy, mastery, and relatedness (Deci et al., 1991).

The Hexad Test, officially titled, "Gamified UK User Type Test" is often used to determine how various customers might be motivated differently to engage with a gamified platform that is designed to sell a product, such as fashion merchandise (Zilinskaite & Spanellis, 2020). The test typology has been used to design tools for recruiting new employees (Shane et al., 2020). In addition, the Hexad Test has also been used in higher education

as a lens for understanding adult motivation for learning in the context of face-to-face and online courses (Mora et al., 2018; Tondello et al., 2016). Less often, the Hexad User Types have been applied in K-12 examples, such as Lavoué (2021) et al.'s study of 257 participants, ages 13 and 14, which demonstrated how adding game elements to a learning space can affect students' engagement and motivation. In the context of this research, the User Types designation of Disruptor is uniquely presented as a practical and meaningful tool for understanding disruptive behaviour and for pointing to some helpful ways to react to such behaviour, to mitigate against any potential negative impacts on learning.

Theoretical foundation of Marczewski's User Types

Marczewski's User Types (2015) are based on Self-Determination Theory, which delineates three universal psychological needs that, if met, can create the ideal conditions for being motivated to learn. These needs are opportunities to experience autonomy, competence, and relatedness (Deci et al., 1991). Student motivation to engage or disengage in learning is dependent upon several factors, including whether or not learners feel good about themselves, and whether they have opportunities to have these basic psychological needs met (Deci & Ryan, 2008a, 2008b). While all humans have each of these needs, preferences for being motivated to greater or lesser degrees by each of these needs is swayed by prior experiences and by opportunities to internalize or attain ownership over the concept and the actualization of each need (Ryan & Deci, 2000). Marczewski (2015) has coined six different user types based on these psychological needs. Table 1 indicates the six User Types and the primary motivation that corresponds with each.

Table 1
User Types and Their Strongest Corresponding Need

User Type	Motivated by
Philanthropist	Relatedness
Socializer	Relatedness
Free Spirit	Autonomy
Achiever	Competence
Player	Rewards
Disruptor	Change

The connections shown in Table 1, which link each of Marczewski's (2015) User Types to a basic psychological need, show that, while all humans have some basic psychological needs in common, certain people exhibit a stronger need or desire for one psychological need over another. Philanthropists are motivated, above all, by understanding the purpose of engagement in a system; these users tend to have a giving attitude and are not expecting any reward as a result (Tondello et al., 2016). Socializers are motivated to interact with people within the system, and to seek out a variety of different types of interactions (Tondello et al., 2016). Both Philanthropists and Socializers are motivated, foremostly, by the psychological need for relatedness (Marczewski, 2015). Achievers, on the other hand, are motivated by challenge, and by task completion; they seek to gain competence through mastering new skills or knowledge sets (Marczewski, 2015). Free spirits, largely motivated by autonomy, prefer to move through a gamified system according to their own chosen pathway, based on their own interests and goals. Marczewski (2015) also designates two other user types—Players and Disruptors.

Players and Disruptors are uniquely described by Marczewski (2015) as primarily motivated, not by one of Self-Determination Theory's three basic psychological needs, but rather, by rewards and change, respectively. A 'Player' is a type of Achiever, but is less motivated to engage in the learning process, and more motivated to accrue rewards by any means necessary—often the quickest and easiest means. Therefore, Players are motivated to complete tasks in the environment; but unlike Achievers who are genuinely motivated to master information and skills that will then be acknowledged with rewards, Players seem to have less regard for learning. They seek to earn badges or other rewards in the system for the sake of accumulating them (Tondello et al., 2018).

The Disruptor User Type

A Disruptor, according to Marczewski (2015), is a type of Free Spirit who is motivated by change. Disruptors can be likened to Free Spirits in that they are motivated by autonomy, but instead of using their autonomy to explore freely, Disruptors look for chances to disrupt the system, and to enact some kind of change. Marczewski (2020) is careful to note that not all disruption is negative, and that while the 'Disruptor' label might seem derogatory, in fact, the desire to disrupt can be a valuable asset, because it can lead to positive change. While some Disruptors are, in fact, motivated by negative change, and they are truly seeking to make life difficult for fellow students and their teacher, many Disruptors simply want to be heard, and are often misunderstood (Marczewski, 2020).

A Disruptor will want to test the boundaries of the system and see how far they can push beyond those boundaries (Marczewski, 2015). Disruptors tend to think about the overall structure of a system; if they have a means for channeling this thinking, it can result in creative innovations for improving the learning environment (Marczewski, 2018). As Marczewski (2020) observed Disruptors, he noted that they tend to look for ways to question a system, or to break a system. As a result, they may prove to be great assets in a learning community, if their need to question or find ways to break a system or a process can be channelled into generating ideas for clarifying the purpose of a learning system, or making a learning process work better for everyone (Marczewski, 2018). Having a Disruptor within a learning space may contribute to a feeling of excitement among learners, because no one knows what interesting action they may try to do next to cause disruption; but this may cause nervousness on the part of the instructor, who is unsure when or how the Disruptor may seek to interrupt, interrogate, or intimidate (Şenocak et al., 2021).

Disruptors are part of Marczewski's 'Free Spirit' category and are highly motivated by change—either negative or positive change. According to this negative-positive demarcation, Marczewski (2015) further breaks down the Disruptor User Type into four subtypes – Influencers, Improvers, Grieffers, and Destroyers. Two of these subtypes, Influencers and Improvers, are motivated by positive change. Influencers are motivated to change how others interact within a system, not necessarily for others' benefit or enjoyment, but rather, simply for the sake of exerting influence and being known as a person who exerts influence (Marczewski, 2020). They may exert this influence through searching for loopholes or discovering ways to hack a system which lead to the system being changed as a result of their discovery. Also motivated by positive change, but in a somewhat different way, are those known by Marczewski (2020) as Improvers; these learners may also spend time finding loopholes or mistakes in a system, but want to find mistakes first, report them so they can be 'fixed,' and thus, make the experience better for other users. Moving on to those who are motivated by negative change, Marczewski (2020) defines the Destroyers and the Grieffers. Destroyers dedicate time to finding hacks or loopholes, but specifically those which could ruin others' experiences. Grieffers are motivated to make others' experience of a system worse or unpleasant for others through any means.

The single Disruptor who was identified as part of this research initiative was not a Grieffers or a Destroyer. Rather, he was an Influencer, motivated by positive change. While there are qualitative differences between the behaviours of negatively- and positively-motivated Disruptors, this article suggests that understanding Disruptors as a broad category, through the example of one participant, who was an Influencer, can provide insight into all

the Disruptor sub-types, and thus, into students who display various types of disruptive behaviour in an online course, providing helpful information to instructors who may encounter a disruptive student.

METHODS

Research Design Overview

This article is based on an instrumental, qualitative case study (Stake, 1995) that took place over a period of 20 weeks. The goal was to explore the human behaviour that occurred in a specific context, i.e., a mobile app designed to promote music learning, and then to describe that behaviour, using rich description, through the lens of Marczewski's (2015) User Types. The researcher, being a music teacher and app designer, was interested in discovering how music learners would choose to engage with a mobile app that was designed to facilitate socially engaged music learning. Certain types of engagement with the app were anticipated, but the study allowed for flexibility with regard to how the music student participants chose to engage in the online space.

Participants

After ethical clearance was first obtained, according to the study design and plan, a studio music teacher, who was a colleague of the principal researcher in this study, was recruited to participate. She agreed to offer participation in the study to all her piano students; 14 of her students, 8 females and 6 males ranging from ages 9 through 15, opted into the research study, and they willingly used a mobile app as part of their musical practice sessions. Informed consent was requested and collected from all the study participants, as well from their parents or guardians. Participants who did not have a mobile device on which they could download the app and use it during their piano practice time were provided with a device to borrow throughout the 20 weeks of the research study. The researcher was not the music teacher of any of the participants in the study and did not know the participants outside the context of the use of the mobile app or the data collection procedures. All participants, along with their piano teacher, were located in a medium-sized town in Ontario, Canada.

Data Collection

This inquiry was conducted with the ontological stance that reality is experienced and expressed through multiple perspectives (Merriam, 2009), and with the epistemological understanding that knowledge is constructed

(Merriam, 2009; Stake, 1995). The primary data collection space was an on-line platform through which music learners, who did not usually interact, could connect with one another through posting recordings of their practice sessions for others to hear, and see and hear signs that others in their piano studio were practicing, through viewing and listening to others' practice session recordings. Participants set their own Daily Practice Goal, i.e., the number of minutes they intended to practice each day, and the app, containing an acoustic analysis module, would 'listen' for piano practice and announce, in the community news feed, when a user met their goal. Daily Practice Goal announcements, as well as recordings and comments that participants added to the online space were the data points collected for analysis (See Figure 1).

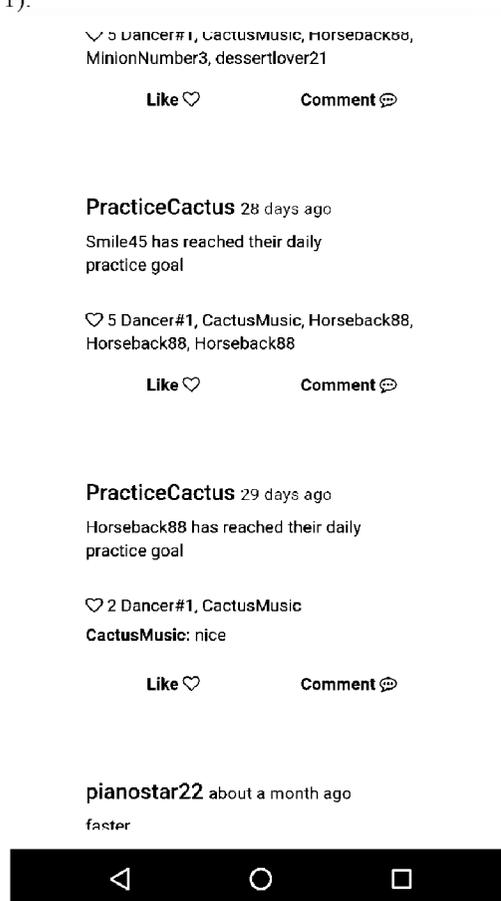


Figure 1. Daily Practice Goal screenshot.

Data was also gathered through two sets of 30-minute semi-structured interviews. Each participant was interviewed halfway through the study period, as well as near the end of the 20-week study, and was asked to reflect on and make sense of their own and others' contributions to the online learning space. For example, a participant would be asked a question such as, 'Last week you posted a recording of yourself playing the C major scale. Why did you choose to share this piece of music with your peers?' In addition, all participants in the study were invited to complete Marczewski's User Types Hexad Test (2016), which is a 24-item survey tool designed to identify one's User Type, or in other words, identify which aspects of a learning system a person is likely to be motivated to engage with, and which of those elements of the learning space they may ignore or not care about.

Data Analysis

When one participant in the study was identified as a Disruptor through the Hexad User Type Test (Marczewski, 2016), specific analysis related to that participant's behaviour was conducted. To develop an understanding of the participant's disruptive actions, the semiotic signs created and enacted by this participant were observed, collected, and analyzed for patterns and themes. These signs included posts, comments, and 'likes' which the participant added within the mobile app, as well as responses to semi-structured interviews where the participant was asked to describe his engagement in the learning space. This data set was examined holistically during the analysis process (Baxter & Jack, 2008), and was compared to the behaviour of the other participants in the study who did not identify strongly with the Disruptor User Type. Each source of data was instrumental toward understanding the phenomenon, providing a convergence that strengthened the findings and ultimately led to a deeper understanding of the case (Baxter & Jack, 2008). Rich description of the Disruptor's identity as a learner, attitude toward learning, and motivational tendencies help to form a clear picture of how one Disruptor navigated a learning system. While this single case might not be sufficient to prove anything, concrete knowledge of a specific case provides additional value beyond universal truths (Flyvbjerg, 2018). In other words, a detailed account of one Disruptor's behaviour sheds light on and provides a visible, relatable, and applicable example of a general principal of human behaviour exhibited during learning, which activates the imagination and invites reflection on students who might have Disruptor tendencies, and who will take online courses. Teachers of online courses can use this information to understand the Disruptor tendency, design for it, and encourage Disruptors toward positive disruption instead of negative disruption.

FINDINGS

Summarized below, in Table 2, are the results of the first research question: *What are the motivational tendencies of students in an online learning platform, according to Marczewski's User Types Hexad Test?* The main participant to be described and analyzed in this research study is the single participant (MinionNumber3) who emerged as a Disruptor, according to the Hexad User Types Survey. Before delving into this description, a general summary of the other 13 participants in the study will be offered, as a helpful contrast.

Hexad test results

The study participants' results on the Hexad User Types survey revealed a variety of primary motivations. Table 2 illustrates the most salient User Type of each participant, with some participants scoring equally high in more than one User Type.

Table 2
Results of User Type Hexad Test Among Research Participants

Participants	Game Name	Age	Gender	Absolute User Type
Participant 1	Afroking33	13	male	Player / Philanthropist / Socialiser
Participant 2	archer	15	female	Philanthropist
Participant 3	dancer#1	10	female	Player
Participant 4	dessertlover21	11	female	Free Spirit / Philanthropist
Participant 5	Equestrian27	13	female	Philanthropist / Socialiser
Participant 6	HarryPotterGirl	11	female	Free Spirit
Participant 7	hockeyman	9	male	Achiever
Participant 8	Horseback88	11	female	Achiever / Free Spirit / Philanthropist
Participant 9	music101	12	female	Philanthropist
Participant 10	pianoman10	12	male	Player / Socialiser
Participant 11	MinionNumber3	13	male	Disruptor / Free Spirit
Participant 12	RidiculousRice	15	male	Free Spirit / Philanthropist
Participant 13	trebledclef	14	female	Achiever
Participant 14	#videogames	15	male	Socialiser

Thirteen out of the 14 participants in this study loved playing the piano and revelled in their identity as ‘musician.’ They enjoyed playing the instrument for their family and friends, listed benefits of practicing an instrument, and had the perception that it was their choice to engage in music lessons. None of these 13 participants admitted to loving practice, i.e., the daily commitment to sitting down at the instrument and repeating pieces and technical exercises, as prescribed by their teacher. Sometimes fights (with parents) and failures occurred, and the participants did not reach their Daily Practice Goal. However, they articulated an overall sense of how practice was important for achieving their goal of improving as piano players, which they celebrated and envisioned.

When asked to describe their experiences of engagement in the learning space, these 13 participants offered positive comments, told stories about their own musical thinking and learning, and recounted funny, enjoyable, or wonder-filled moments in the learning community. These participants also expressed some frustrations and disappointments, either with the functionality of the learning space, or with their own or others’ achievements during the period of the study. These participants identified what went well, and not so well within the learning space.

And then there was MinionNumber3.

Introducing MinionNumber3

The Disruptor in this study, MinionNumber3, aged 13 and in grade eight at school, insisted that he hated taking music lessons. He only agreed to his father’s requirements that he practice the piano for two reasons. First and foremost, this practice earned him double screen time on weekends. Second, a piano exam he was eligible to take would earn him a high school course credit, which he judged to be a valuable opportunity to get some time off during school hours. He did not believe that practicing a musical instrument has any benefits and declared that he had never experienced happiness or satisfaction while making music.

Even with MinionNumber3’s expression of negative views on the piano and on regular practice, he agreed to participate in the research study; as the study progressed, he became heavily involved in using the mobile app in ways that reflected the Disruptor User Type tendencies. He used the mobile app in three unique ways: finding bugs, posting unique comments, and posting recordings in the app that were different than what was expected or invited. MinionNumber3 is an example of a Disruptor who is easy to integrate into the classroom culture of an online course. Even though he engaged in interruption and intimidation of fellow students, and interrogation of the learning space, it will become evident from the findings described here, and in the Discussion section below, that these actions were generally positively

motivated.

In answer to the second research question: *What are the behaviours of a Disruptor in an online learning context which exemplify the Disruptor tendency?* it was found that MinionNumber3 engaged in interruption, interrogation, and intimidation.

Interruption

MinionNumber3 was the only participant in the study who regularly dedicated time and effort to discovering problems with the mobile app used in the context of this study. While most participants tried to use the app in the way that their music teacher encouraged, MinionNumber3 stopped using the app for the intended purpose to do his favourite thing, i.e., try to make the app crash. Any problem he identified, he referred to as a 'bug.' That same terminology will now be used here.

When MinionNumber3 noticed bugs, he took initiative to report these, usually to the researcher or to his peers. This meant that he repeatedly and continuously sent messages about these problems. When an app update was rolled out, he tried all aspects of the app's functionality before any of his peers had a chance, so that he was always the one to find and announce errors. Even when a bug he found did not impact the functionality of the app, he still reported this. If he felt there was functionality missing from the app, he also reported this as a bug, i.e., as a perceived 'error.'

Interrogation

MinionNumber3 interrogated the purpose of the learning space through doing completely different things within the community than were suggested by the music teacher. It will be evident from the description of MinionNumber3's alternative ways of engaging in the space that his actions were generally positively motivated and did not derail the community away from learning, but in fact, had the opposite effect, and resulted in some unexpected, deep engagement with the subject area. This phenomenon will be described in the Discussion section below.

Participants were asked to contribute recordings of their practice sessions that they wished to share with their community, as a form of 'sharing practice' with piano-playing peers, such that their individual practice, usually done at home alone, would become part of a community experience. Sharing practice was described to the students as a means of interacting with their distributed community, through posting, and 'liking' and commenting on one another's posts. The other 13 participants in the research study, as encouraged, recorded short snippets of their practice sessions and posted them in the learning community for their peers to see, comment on, and

‘like.’ MinionNumber3, on the other hand, posted recordings which were designed to involve and challenge other users. For example, he posted a re-cording where he played a song twice through and the second time, purposefully played an error (See Figure 2). He challenged other students to see if they could hear the error, titling his post, ‘97% of people can’t spot the difference.’

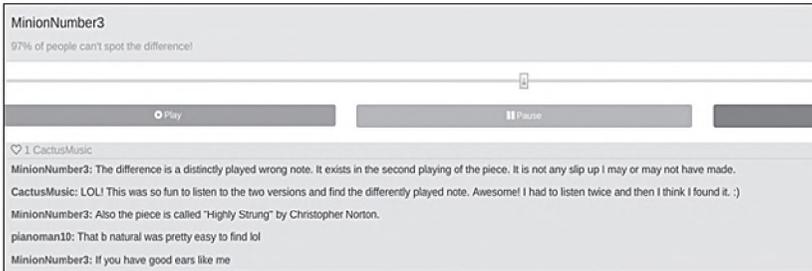


Figure 2. 97% of people can’t spot the difference. MinionNumber3 interrogates the purpose of the online learning space by posting a recording with an intentional error.

While this was certainly welcome behaviour within the mobile app, which was well-received by the community and by the piano teacher of these participants, this type of post had not been anticipated or invited within the learning space. MinionNumber3, when asked to explain why he created invitational posts that ended up engaging others in musical listening and thinking, he said, ‘I wanted to make people feel bad if they couldn’t get it.’ From his perspective, then, not only was this a type of interrogation of the app’s purpose, but it was also a form of indirect intimidation. While MinionNumber3 did share his intent to intimidate in the context of an interview, it was not evident that he shared this intent with any of his peers, as they did not express any negative reaction to his invitational posts.

Intimidation

Thankfully, MinionNumber3 did not engage in frequent intimidation which was negatively motivated. Rather, his intimidation tactics were actually somewhat humorous, or tongue-in-cheek. Figure 3 depicts an example.

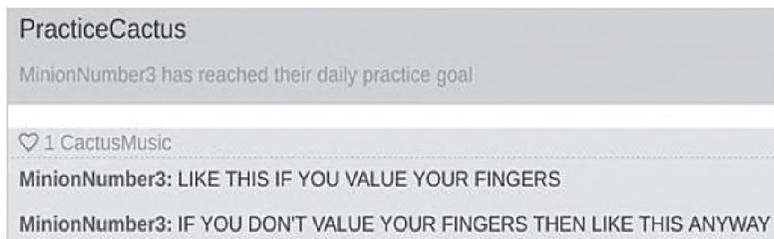


Figure 3. Intimidating comment. MinionNumber3 posted this comment in the learning community and later acknowledged that ‘all caps’ means shouting.

MinionNumber3 coined this type of post as ‘ironic,’ describing it as an attempt to make fun of the situation. His choice to type fully capitalized comments was defended as just ‘something to do.’ When asked if he thought that an all-caps post was considered shouting, he said, yes of course. Even though these posts were framed as invitations, MinionNumber3 genuinely did not seem to care about others’ reactions. When asked to describe the reaction he was hoping for, he had no answer, but instead, emphasized that these posts were about him and his own choice to engage in the learning space in the way he chose. MinionNumber3 was in the habit of reporting the behaviour of other users within in the app as ‘errors,’ when he felt they should have been engaging in the space, according to his criteria for frequency of creating posts and meeting Daily Practice Goal targets.

DISCUSSION

That there is only one Disruptor identified within this small group of participants is synonymous with how infrequent this User Type is found in a typical user group, as compared to Philanthropists, Free Spirits, and Achievers (Şenocak et al., 2021; Tondello et al., 2018). Instructors are less likely, then, to encounter this User Type among the students they teach. However, as the name suggests, a Disruptor has the potential to bring disruption to the learning space in a way that impacts all the other User Types. Even those with other prominent User Types may have some Disruptor tendencies. Therefore, it is important to consider one Disruptor, and how he chose to navigate an online learning space. Because the Disruptor featured here was motivated by positive intentions, he is an example of how disruption-gone-right can look within a learning space. He is a model that clearly illustrates the needs of a Disruptor, and how those needs can be met in ways that boost

learning within an online space, for both the Disruptor themselves, as well as others. The example of MinionNumber3 is held forth here as a vision of how a Disruptor can be part of a learning space and have their need to disrupt satisfied without hindering learning. Therefore, MinionNumber3's actions, including acts of interruption, interrogation, and intimidation, can inform instructional knowledge and choices. Instructors should: 1) understand that there is foundational human identity factor impacting a Disruptor's motivation to act in disruptive ways; and 2) be aware of the need for Disruptors to spark and instigate change in the environment.

UNDERSTANDING WHY A DISRUPTOR IS MOTIVATED TO ACT IN DISRUPTIVE WAYS

Reasons why disruptors interrupt, interrogate, and intimidate, based on their intrinsic need for autonomy, and based on their identity, are described here, to help instructors who want to respond to disruption in ways that are effective for maximizing learning in an online space.

Why does a Disruptor interrupt?

As MinionNumber3 continually identified errors that he discovered within the online learning space, he took on the identity of a 'bug-finder,' because he liked finding mistakes. A different type of person, (a Philanthropist, for example), might engage in similar behaviour, but their motivation for finding bugs would be to help others. Reporting bugs would be, for a Philanthropist, a means of paving the way for others following them. MinionNumber3, however, was motivated more by the fact that he enjoyed discovering something that no one else had yet discovered, and he had a particular affinity for discovering and reporting problems. He also had a sense of satisfaction when problems that he pointed out were fixed. During in-person community meetings, when participants were invited to share exciting or interesting events, MinionNumber3 chose to share about the errors he had reported and which of those errors had resulted in fixes. This behaviour differentiates MinionNumber3 as a Disruptor who is motivated by change, not for how that change helps others, but for how that change defines him and distinguishes him.

As it turned out, when MinionNumber3 interrupted learning (his own and others') to find and discuss problems, he was repeatedly engaged in thinking about the purpose of the learning space. To identify the most errors possible, he started to assign the 'error' label to anything that he wished the app would do, even if the app was never designed for that functionality. These bug reports were about ways the app could further engage users in

musical thinking and musical engagement. For example, MinionNumber3 once articulated the following reasons why a new feature should be added to the learning space. Students should be able to: a) include disclaimers about knowing their piano playing is not perfect; b) specify which aspects of their playing they are working on improving; and c) ask for feedback on how to improve. Through Minion's discovery of this 'bug,' and detailed rationale, he expressed some important aspects of musical thinking and musical learning which reflected deep engagement with the subject area of the learning space.

Why does a Disruptor interrogate?

Interrogating the purpose of the learning space, through challenging the types of semiotic signs which are considered culturally acceptable as contributions in that space, can be understood as disruption with the goal of alternative participation. If a learner feels unable to engage with the learning in the traditional or expected way, they may seek to disrupt. When someone does disrupt, then, whether the disruption is positive or negative will give the instructor insight into the motivation of that student.

When a Disruptor is engaged in an online learning environment and does something other than what is expected, their activity might at first appear to be disconnected from the course learning goals and content. However, when disruptive behaviour occurs, this is an opportunity to check for engagement. Some interruptions are, of course, problematic and should be addressed in order to attempt to dissuade the behaviour; but some disruptive behaviour can exhibit signs of engaged learning, if that behaviour is viewed from a different perspective. It is important to be open to how Disruptive player types might engage with the content and processes in an online course, since they may be leaders who influence the other learners in the space, as MinionNumber3 was. If disruptive activities are, in fact, demonstrations of engagement with the course content or with the ideas of the course in some way, then the behaviours can be encouraged, instead of discouraged or ignored.

Instead of ignoring or telling a Disruptor to stop complaining, instructors may reframe their view of a Disruptor as a contributor. As Marczewski (2020) suggests, a Disruptor may easily be labelled a complainer. Someone who is constantly pointing out errors and problems may be perceived as an annoyance and as critical of an online learning system. However, Disruptors want to be heard (Marczewski, 2020). Changing the way Disruptors are perceived, from irritating and tiresome to contributors with the potential for positive impact on the learning environment, is a reframing of disruptive behaviour that can celebrate who a Disruptor is, in contrast with simply trying to stop them from engaging in disruption. Understanding that a Disruptor wants to be heard can remind instructors to listen to Disruptors and

view their negative comments as contributions to the learning community that can potentially be celebrated. Attending to a Disruptor's attempts to interrogate the purpose of learning and acting on their suggestions for change can be valuable for affirming the learner.

Even though MinionNumber3 engaged in certain behaviours because of motivation that was not directly related to music learning, he was engaged in music learning anyway. To test the app and ensure it was working, he clicked on every button, and tried every activity possible within the app. This meant that he continually visited the community newsfeed page, listened to recordings shared by his peers, checked his stats, and updated his Daily Practice Goal according to how many minutes he planned to practice that day. Therefore, a lot of musical thinking was involved in MinionNumber3's activities. Upon first thought, an instructor might view checking for bugs in the online space as a distraction from learning or as opposed to learning; upon second thought, an instructor can determine if a Disruptor's activities are an engagement with the content in the learning space, albeit in a different way than originally intended.

Disruptor actions were a means for MinionNumber3 to engage, whether directly or indirectly, with content he was not interested in. When considering the divergent types of signs that MinionNumber3 created within the online learning space, they appear to be vehicles he used to forge a connection between himself as a person and his music-learning life. The fact that he was so negative about piano learning and piano practising and yet became so active within the mobile app community focused on piano practice suggests that MinionNumber3 had discovered an outlet to express himself authentically in the context of an activity he would not otherwise choose to engage in.

Nudge Disruptors toward positive disruption

If a disruptive student within an online course is motivated by negative change, this presents challenges. Hacking the learning platform so it stops working, logging into the admin panel to change scores, or continually interrupting others during online conversations, are behaviours that cannot simply be accepted as part of a student's identity, since they interfere with a welcoming classroom community where all can learn. In cases like this, it is important to understand the motivation of a Disruptor who is prompted to enact negative change. Realizing the psychological need the student has for disrupting may enable the instructor to find ways to channel the Disruptor's behaviour toward positive change. The Disruptor is unlikely to be motivated by an instructor who tells them to stop engaging in behaviours that make it difficult for others to learn; in fact, a Disruptor may be motivated to do exactly that. Instead, then, it may be more effective to invite the Disruptor into another type of disruption, i.e., positive disruption within the learning space.

The Disruptor may find satisfaction through being invited to: a) engage in finding ‘bugs,’ or finding ways in which the learning system could be improved upon; b) complete assignments in unconventional ways; c) choose from multiple assignments. It may be highly motivating to Disruptors if the instructor affirms a unique behaviour that the Disruptor has tried out or announces to the class that the Disruptor’s actions have led to an improvement in the course platform or process. Some Disruptors may satisfy a deep, personal need through sharing with their peer about a new option they have discovered for completing a course assignment or achieving a course learning goal. Marczewski (2020) specifically recommends including game elements such as voting systems and idea-sharing platforms as mechanisms for giving voice to Disruptors.

Proactively, instructors may design their online course structure to provide built-in opportunities for disruption. Possible learning designs that can motivate Disruptors include: “innovation platforms, voting mechanisms, development tools, anonymity, anarchic gameplay” (Tondello et al., 2018, p. 232). Instructors may even consider offering a reward or extra credit to someone who suggests alternative assignments or activities for engaging in the course content and demonstrating learning in different ways. Participating in these ways may satisfy the Disruptor’s desire for disruption, and thus, lessen their motivation to engage in highly negative behaviours which can derail the learning of themselves and others.

Why does a Disruptor intimidate?

MinionNumber3 “shouted,” using all caps within the online learning community, said he was better than others, put down the musical ability of some of his peers, and criticized his peers for not participating as much as he did. In the context of this research, these behaviours did not appear to discourage others from interacting within the learning community. This was, perhaps, partly because MinionNumber3 emerged as a leader that others looked to, and they interpreted his intimidating actions as jokes, and as funny occurrences which made visiting the learning community more fun, since they never knew what to expect when logging on to see what he might be up to. MinionNumber3 was described as a leader by his fellow users. He took initiative to become the most active person in the space, commenting regularly and drawing attention to his posts. Several students mentioned his activities when they described what was happening in the space, expressing admiration for his humour and listing it as a key example of what took place within the learning space.

If there is a negatively motivated Disruptor in the class, it might be difficult to imagine them transforming into a highly motivated Philanthropist or Socializer; but perhaps they can be imagined as a positive Disruptor. This framing places a more reasonable expectation on the learner. There is

a greater chance of positive engagement if an instructor acknowledges and works in harmony with students' motivational tendencies, instead of trying to get rid of them or change them to something else. It may also be valuable for an instructor to invite students to complete Marczewski's User Types Test and have class discussions about how each student might consciously tap into their own motivational tendencies in ways that could satisfy deeply felt needs.

CONCLUSION

Only one Disruptor was identified and described in this study. This does not assume that his behaviours are the same as that of other Disruptors in online learning spaces, however, the patterns of behaviour that *MinionNumber3* engaged in, which are clearly linked to his User Type, are patterns that are likely to be seen in other learners with similar User Type designations.

Instructors should not take it personally when different elements of their online course are experienced differently by different learners. Socializers will not necessarily be motivated by earning badges (or marks), and Achievers are unlikely to be motivated by a variety of social interactions, including group projects. Disruptors, since they are motivated by change, have the potential to be a disruptive force in the learning system. Understanding Marczewski's (2015) User Types can enable instructors to realize the ways in which their students will be differently motivated by different design elements of the online course platform.

When an instructor thinks about the possibility of disruption in their classroom, they may in fact be very open and welcoming to disruptions that interrupt the original flow or intent of a learning activity, or disruptions which call into question the purpose of the learning, since occurrences such as this have the potential to re-direct, re-focus, and re-inspire learners. An educator who is flexible and student-centred will, with some practice, be able to lead their learners through such disruptions in productive and helpful ways. This article suggests that instructors can internalize another reason to embrace disruption—not simply for its potential to lead to deep learning, but also because it is embedded in who students are.

Promoting a positive classroom culture online is easier if the motivational foundation for disruptive behaviour is taken into consideration as part of student identity. Engaging learners and dissuading inappropriate behaviour may be achieved by understanding that Disruptors in the online environment may need unique encouragements and promptings to help them satisfy their need for disrupting the environment. Nudging a Disruptor toward the types of behaviours that can satisfy their need to invoke change in the learning space in positive ways can lead them away from needing to spark change which could be detrimental to themselves and other learners in the space.

Students who are motivated by change are likely to, (not surprisingly), engage in behaviours that are designed to bring change to the learning space. These types of students—Disruptors who may be motivated by positive or negative change—can be strong forces within a learning space. A Disruptor who is motivated by positive change, such as *MinionNumber3*, who was described in this research study, was a force for good within the online space. His actions prompted clarification, led to improved tools for facilitating online interactions, and brought joy to the online learning space. While a Disruptor's actions might not appear, at first glance, to be immediately focused on the course content, realizing how a Disruptor is motivated, as well as viewing their actions with the lens of motivational theory, may reveal that they are, in fact, engaged with the course content in their own way. A course instructor who is open to observations of and conversations with learners who exhibit disruptive behaviour may learn ways that the behaviour is an attempt at connecting with the course content. Disruptors may still need to fulfill expectations in the course through engaging in specific tasks, but perhaps there is room for viewing alternative learning engagement as one source for assessing growth and learning that has taken place during the course.

This study highlighted how one Disruptor, who was motivated to see positive change happen in an online learning space, had an intense need to disrupt, and how that need influenced his actions and impacted the experiences of others. Since this Disruptor was an Influencer who wanted to invoke positive change, this did not present serious challenges which threatened his or others' ability to learn. Therefore, this case is an effective model for considering how the need to disrupt can be paired with engagement in learning, and a good example of how disruption need not be automatically considered as disengagement within a learning community. Disruptors who are Griefers or Destroyers, i.e., those who are motivated by negative change, will, admittedly, pose more urgent and significant threats to the learning environment. Future studies can highlight ways in which Disruptors who are motivated by negative change have been influenced to participate positively in the online learning space, while still maintaining their need to disrupt.

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