Using Cryptocurrency to Motivate Students: Teachers' Willingness to Innovate

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Abstract

Literature on technology adoption by educators shows that attitude is of critical importance and that what motivates changes in attitude is how useful the technology is in helping the individuals to do their job. The purpose of this exploratory research is to discover what teachers would like to see in a new education-focused cryptocurrency for it to be useful for them. Lecturers in both public and private universities in Vietnam were consulted to better understand their preferences on this topic. The findings indicate that most lecturers define their level of interest as either interested or very interested in using this new coin as a way to motivate certain student behaviors. The most popular two student behaviors that teachers would like to motivate are in-class participation and attendance. The lecturers' focus on in-class behavior highlights the fact that educators currently struggle to change student learning behavior. As reported in previous research, students indicated they would change their behavior in order to earn these coins. This implies that this new cryptocurrency may be exactly what both the teachers and students need in order to improve the overall learning process. The implications for practice include that a new coin, such as the one described herein, could significantly improve one of university lecturers' challenges: Motivating student in-class participation.

Introduction

A new cryptocurrency with the specific intent to motivate students was recently conceptualized (Andre, 2022). In that paper, 89% of students reported that they would be motivated to study more if they were rewarded with such a coin.

In the above-mentioned paper, it was proposed that teachers would be in control of the distribution of the coins to students. That is, teachers would decide which behaviors to encourage and to what extent. In other words, teachers would decide what a student would need to do in order to earn exactly how many coins.

It is important, especially in the context of the adoption of a new technology in an educational context, that the perspectives of multiple stakeholders be fully considered (Davies, 2010). Since the earlier paper focused on the student view, the goal of this current study is to explore the perspective of the teachers, as both teachers and students must participate in such a system for it to come to fruition.

While many would use the Unified Theory of Acceptance and Use of Technology (UTAUT) or the Technology Acceptance Model (TAM) to see what drives teacher acceptance of this new coin, these models are focused on technologies which are well understood (for example Adiguzel et al., 2011) or at least can be demonstrated to users (for example Banerjee & Walunj, 2019).

In the current context, we are dealing with a topic (cryptocurrency) that not only do teachers not understand well but neither does the public at large (CoinBundle Team, 2018), despite it being in the news frequently. In fact, the parameters of this new cryptocurrency have not, yet, been defined. Indeed, the purpose of this and prior research is to determine the wants and needs of the various stakeholder groups so that the parameters can be designed in an appropriate way to motivate usage by the largest number of individuals and institutions.

To better understand why the TAM and UTAUT are inappropriate at this early stage of development, it might be useful for the reader to see some survey questions from these instruments.

- From TAM3 (Venkatesh & Bala, 2008): "The quality of the output I get from the system is high."

- From UTAUT (Venkatesh et al., 2003): "Working with the system is fun."

- From UTAUT2 (Venkatesh et al., 2012): "At the current price, it provides a good value."

As the system does not yet exist, there is no output, nor user experience, nor is there a price. Therefore, respondents would be unable to answer these questions until there is, at a minimum, a functioning prototype available for them to experience.

At that time, assuming we know that we want teachers to use this technology, we can use one of the existing instruments to find out how best to persuade teachers to adopt this new

coin. In the meantime, this paper intends to provide an initial exploration of teachers' thoughts on the subject.

Existing research from Belgium indicates that teachers' attitude toward a new technology is the most important factor in determining whether teachers will adopt it and that the perceived usefulness (from TAM) was central to the formation of that attitude (Pynoo et al., 2012). Similar results were found in China (Sang et al., 2010) and Nigeria (Oteyola et al., 2022). Therefore it is reasonable to believe that teacher attitude might be an issue for Vietnamese teachers' adoption of this new coin. Following from this, it is important to find what teachers would find useful about a new education-focused cryptocurrency so as to create the most favorable and receptive attitudes possible.

Methods

Exploratory research is used to investigate problems which are not yet well defined (Brown, 2006, p. 45). Given that only one paper has been found in literature referencing the use of cryptocurrency for student motivation (Andre, 2022), it is important to now explore the issue from the teacher's perspective.

In this study, qualitative methods are used to discover the issues that might be important to university lecturers. The questions asked were open-ended to allow for more nuanced and complete answers (Wertz, 2011), which is important in any exploratory research. Structured interviews were performed so that it would be possible to compare answers between respondents in order to find common themes between them.

Sample

Interviews were conducted with 26 lecturers at both public and private universities in Vietnam. The sample was selected using purposeful sampling based on the criteria of being a university lecturer. The sample included both Vietnamese and foreign educators.

Where do you teach	Respondents
Public university	16 (55%)
Private university	5 (19%)
Public and private universities	5 (19%)

Gender	Respondents
Female	14 (54%)
Male	12 (46%)

On average, respondents have been teaching for 11 years with none of them teaching for less than three years.

21 of 26 (81%) respondents teach business and/or finance subjects.

Findings

The following will report on the answers from the respondents for each of the various questions asked.

How interested are you in having this coin available to motivate students?

18 of 26 (69%) reported they were interested or very interested (4 or 5 on a five-point scale) in being able to use this coin to change student behavior.

What student behavior would you like to motivate with the coin?

Table 1. Behavior to change

Student behavior to motivate	Respondents
In-class participation	21 (81%)
In-class participation or attendance	23 (88%)
Grades	7 (27%)

To what extent do students take advantage of what you currently offer for free?

Table 2. Current usage of free offerings

How many students use offerings	Respondents
Usually no students	0
Very few students (1-3)	7 (27%)
4-6 students per semester	6 (23%)
7-10 students per semester	4 (15%)
More than 10 students each semester	9 (35%)

What would you be willing to offer students in trade for coins the student earned?

Table 3. Additional offerings for students to buy with coins

What could coins buy from you	Respondents
More of my time, discussing different topics than usual	15 (58%)
Unsure, need to consider it more	9 (35%)

Two respondents (8%) said they would be uncomfortable with the idea of a student buying anything from them (even with a virtual currency) because they felt it was, or appeared, unethical.

Would you require students to be your current student to get the benefits from you?

Table 4. Necessity of being the teacher's current student to redeem coins

Must be current student?	Respondents
Yes	9 (35%)
No	11 (42%)
Other	6 (23%)

How important is it to you that you can spend the coins you receive from students on something valuable to you?

Only 23% (6 of 26) said it was important or very important (4 or 5 on a five-point scale) that the coins have some direct value for them.

Discussion

It should not be surprising that the primary behavior teachers want to motivate in students is in-class participation. Participation is synonymous with student behavioral engagement (as opposed to cognitive or emotional, which are not directly observable) (Yazzie-Mintz, 2007). Add to this the fact that we know engagement is critical to student learning (Kuh, 2009) and the fact that the teacher's purpose is student learning and it makes even more sense.

When we consider the daily experiences and motivation of the teacher, when students are more active and engaged the teacher feels more motivated (Tümen Akyıldız et al., 2019). Student passivity is more of a challenge in Asia than the west (Liu & Jackson, 2011). When students are passive, whether in the classroom or online, it is extremely demotivating for the teacher. So motivating students to participate more during class time might not just be about student learning but also about making the teacher's experience at work more enjoyable. This is further supported by the fact that only 27% of teachers responded that they would reward student grades. While grades are the end result, participation during class is what the teacher feels on a daily basis and the current findings indicate that teachers are not satisfied with the level of participation they are currently seeing from students.

Teachers' focus on rewarding participation should also consider that rewards have been shown to be powerful in motivating behavior momentarily, rather than for the long-term (Daniels, 2010). However, if teachers are focused on getting through the day, while trying to have some positive impact on their students, it seems reasonable to consider something which will work for today. Using such a tool does not preclude other techniques which can have a more long-term impact. While it was found that tangible rewards can undermine intrinsic motivation in some circumstances, that was found to be untrue for rewards given for something unrelated to an actual task (Deci et al., 1999), like attending or participating during class. This can become a complex issue because if the quality of participation is rewarded, rather than simply any participation. In this case, the reward may have a

negative impact on intrinsic motivation (Ibid.). However, if students want to participate but feel constrained by social pressure, these rewards may act as a liberator and thus enhance intrinsic motivation.

An additional indication of student passivity is the fact that half (50%) of the teachers reported six or fewer students take advantage of those things that the teachers currently offer their students for free. Examples here include providing additional feedback on assignments and guidance on how to improve the student's performance. This matches findings from an earlier paper (Andre, 2022) showing that some students feel undeserving of consuming the teacher's time.

The fact that 69% of teachers were either interested or very interested (4 or 5 on a five-point scale) in the idea of this new coin is a very positive sign. It was found in earlier research that 89% of students were interested (Andre, 2022). Since this new coin would require, at a minimum, teachers and students to participate, the fact that the majority of both are interested is a very promising indicator.

For the question about what would teachers offer to students in trade for the coins they earned, 35% of the respondents felt they needed more time to consider this question. However, 58% said they would give more of their own time, including outside of standard hours, and they would increase the range of topics they would be willing to discuss. One example that came up (multiple times) was that the teachers would offer their consulting services. This should not be surprising considering most of the respondents were business and finance lecturers and, as such, often perform consulting services to industry.

When teachers were asked if the students would need to be their current student in order to redeem the coins with them, teachers were less certain. Responses were closely split between yes, no, and other. In this case, the other category included requiring the redeemer to be either the teacher's current or previous student, simply that they would set some limits for those who were not currently their student, or the respondent needed more information about how the coin would function and what rules would exist within their university related to this.

One challenge which remains is represented by two of 26 respondents (8%) who said that they would not feel comfortable asking students to pay them for anything because it starts to feel to them (and perhaps appear to others) like corruption. This point does support the idea that the coin should not be redeemable for real-world money.

A testament to the dedication of these teachers is that only 23% (6 out of 26) reported that they felt it was important or very important (4 or 5 on a five-point scale) that the coins have some tangible value to the teacher. Of those six who wanted to see some personal benefit, only two actually gave concrete examples of what they would want to purchase with their coins. One example was to buy books or courses for themselves or their children. The other was to pay to have an in-depth talk with an expert in the field the respondent teaches. Others (beside the six) commented that they would use the coins they earned to further motivate students, thus completing the circle. To be fair, many respondents needed more time to consider what they would do with the coins they earned from redeeming them

for students. Given the novelty of this concept, it should be expected that clarity, on the part of multiple stakeholders, will take time.

Conclusions and further research

While the purpose of exploratory research is not to draw strong conclusions but rather to offer insights on the directions for future research, some patterns in the teachers' responses are worth highlighting. The first is that 69% of teachers reported they were interested or very interested in having this coin available for them to motivate students. While the sample size is far too small to generalize from, it does hint that teachers, in addition to students (Andre, 2022), are interested in making this educationally-focused cryptocurrency a reality. The main student behavior teachers would like to motivate is increased participation during class time, showing that teachers are frustrated by low current participation rates. Teachers would be willing to trade their time (beyond what they offer now for free) to students for the coins they earn and might even support giving their time in trade for coins that were given by other teachers. This shows that the coin could, potentially, be a system which connects through multiple educators in a way to amplify the motivational power upon the students. Lastly, respondents did not place a high priority on the coins having direct value to the teacher. That is, their desires seem centered on changing student behavior rather than on person gain.

As mentioned in the introduction, the TAM (Venkatesh & Bala, 2008) and UTAUT (Venkatesh et al., 2003) are inappropriate for a new technology which cannot yet be demonstrated. However, as the parameters of the coin described herein come into focus, using the TAM or UTAUT to see what factors are most important for adoption could be useful.

More important, especially in the Vietnamese context, is that in some countries the use of cryptocurrencies are illegal. This needs to be explored on a country-by-country basis to see how this coin could be designed to not only satisfy the students and teachers but the government as well. Given the findings in this and earlier research, there are indications that the system would not need to, and perhaps should not, involve any national currency. In that case, it is unlikely to run afoul of regulations.

About the authors

John Andre is an American entrepreneur and educator with a strong track record of success in both fields. He founded several companies, including Montgomery Software, which made its name in training and consulting for corporate clients around the world. He is currently a senior lecturer for National Economics University in Hanoi, Vietnam and teaches business management and finance. Mr. Andre's current research areas include the intersection of technology and student learning. His recent consulting and training clients include the Vietnamese government, state-owned enterprises, and private firms across the country. He can be reached at john.andre@isneu.org.

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