

Psychological Theories of Motivation in Digital Learning Environments

Nwachukwu Chinyere Maryrose

Department of Educational Foundations, Benjamin Uwajumogu State College of Education, Ihitte-Uboma, Imo State, Nigeria

ABSTRACT

Digital learning environments, such as online courses, mobile learning applications, and AI-supported platforms, have expanded access to education but have also exposed a persistent problem: many learners disengage, procrastinate, or drop out when the structure and social presence of the physical classroom are removed. Motivation is therefore central to the success of digital learning. This theoretical paper reviews major psychological theories of motivation and examines how each explains and guides motivation in digital learning environments. The theories reviewed are self-determination theory, expectancy-value theory, self-efficacy within social cognitive theory, achievement goal theory, attribution theory, Keller's ARCS model, flow theory, and Maslow's hierarchy of needs, together with self-regulated learning as a framework linking motivation to learner behaviour. For each theory, the paper outlines its core propositions and its implications for the design of digital courses, gamification, feedback, learner support, and assessment. A comparative summary shows that the theories converge on a few design principles: support learners' autonomy, competence, and relatedness; make the value of tasks clear; build confidence through attainable challenge and timely feedback; emphasize mastery over comparison; and help learners regulate their own learning. The paper then considers these principles in the Nigerian context, where infrastructure constraints, cost, and limited digital readiness shape learners' motivation. It recommends theory-informed course design, training of educators in online facilitation, and research testing these theories with Nigerian learners.

Keywords: motivation, self-determination theory, digital learning, online learning, gamification, self-regulated learning

INTRODUCTION

The past two decades have seen a steady shift of teaching and learning into digital spaces. Universities and colleges run courses on learning management systems, millions enroll in massive open online courses (MOOCs), learners study on mobile applications, and

AI tutors now respond to questions at any hour. The COVID-19 school closures of 2020 accelerated this shift, forcing institutions in Nigeria and elsewhere to move instruction online almost overnight. Digital learning is now a permanent part of education.

Digital learning promises flexibility, wider access and personalised instruction, but it places greater demands on learners' motivation. In a physical classroom, timetables, the presence of a teacher and peers, and immediate social expectations sustain participation. Online, much of this external structure disappears. Learners must decide for themselves when to log in, how long to persist with difficult material and whether to complete optional activities. Completion rates in MOOCs, for instance, have commonly been found to be low (Jordan, 2014), and online learners frequently report isolation, procrastination and loss of interest. Broadbent and Poon (2015) found that learners' ability to regulate their own effort and time was associated with academic success in online higher education, underscoring the role of motivation.

Psychological theories of motivation offer explanations for why learners start, persist with and invest effort in learning, and they suggest how environments can be designed to support these processes. The purpose of this paper is to review major psychological theories of motivation and examine their application to digital learning environments. Specifically, the paper (a) clarifies the key concepts, (b) presents each theory and its implications for digital learning, (c) compares the theories and draws out common design principles, and (d) considers their relevance to digital learning in Nigeria.

CONCEPTUAL CLARIFICATION

Motivation. Motivation refers to the processes that initiate, direct and sustain goal-oriented behaviour. In learning, it determines whether a learner chooses to engage with a task, how much effort the learner invests, and how long the learner persists when the task becomes difficult. Ryan and Deci (2000) distinguish intrinsic motivation, doing an activity for its inherent satisfaction, from extrinsic motivation, doing an activity for a separable outcome such as a grade, reward or approval. Extrinsic motivation is not uniform: it ranges from externally controlled behaviour to behaviour that the learner has come to value personally.

Digital Learning Environments. A digital learning environment is any setting in which learning is mediated mainly through digital technologies. These include fully online courses,

blended courses that combine online and face-to-face elements, MOOCs, learning management systems such as Moodle and Google Classroom, mobile learning applications, educational games, virtual laboratories and AI-supported tutoring platforms. Digital environments differ from traditional classrooms in features that matter for motivation: greater learner control over pace and sequence, reduced physical presence of teachers and peers, the possibility of immediate automated feedback, and rich data on learner activity.

Gamification. Gamification is the use of game design elements in non-game contexts (Deterding et al., 2011). In digital learning, it includes points, badges, leaderboards, levels, progress bars, challenges and narratives. Gamification is one of the most common ways in which motivation theories are put into practice online, and its effects depend heavily on whether it is designed in line with those theories (Sailer & Homner, 2020).

PSYCHOLOGICAL THEORIES AND THEIR APPLICATION

Self-Determination Theory

Self-determination theory (SDT), developed by Deci and Ryan (1985), proposes that people have three basic psychological needs: autonomy (feeling that one's actions are self-chosen), competence (feeling effective and capable) and relatedness (feeling connected to others). When these needs are satisfied, people are more likely to be intrinsically motivated or to internalise the value of extrinsically motivated tasks; when they are thwarted, motivation becomes controlled or disappears (Ryan & Deci, 2000). Application to digital learning. Digital environments can support autonomy by offering choices of pace, pathway, topic and format, and by explaining the rationale for tasks. They support competence through well-sequenced challenges, clear goals, progress indicators and informative feedback. Relatedness is the need most at risk online; it can be supported through discussion forums, peer review, group projects, live sessions and visible, responsive instructors. SDT also warns that rewards such as points and badges can undermine intrinsic motivation if experienced as controlling.

Expectancy-Value Theory

Expectancy-value theory (Eccles et al., 1983; Wigfield & Eccles, 2000) holds that learners' choices, effort and persistence depend on two beliefs: their expectancy of success ("Can I do this?") and the value they place on the task ("Do I want to do this, and why?"). Value comprises intrinsic value (enjoyment), attainment value (importance to identity), utility value (usefulness for future goals) and cost (the effort, time and emotional toll required).

Application to digital learning. Online courses should raise expectancy by starting with attainable tasks, providing worked examples and making success criteria clear. They should raise value by showing how content connects to learners' careers and lives. Designers should also reduce perceived cost: confusing navigation, slow-loading resources, heavy data use and unclear instructions all add cost and lower motivation, an important consideration where internet access is expensive.

Self-Efficacy and Social Cognitive Theory

Within Bandura's social cognitive theory, self-efficacy is a person's belief in their capability to organise and carry out the actions required to achieve a goal (Bandura, 1997). Learners with high self-efficacy choose challenging tasks, invest more effort and persist after setbacks. Self-efficacy is built through four sources: mastery experiences, vicarious experiences, verbal persuasion and physiological and emotional states. Application to digital learning. Digital environments can provide frequent mastery experiences through short quizzes with immediate feedback and scaffolded tasks. Video demonstrations by peers provide vicarious experience. Encouraging, specific feedback offers verbal persuasion. Technology self-efficacy is also important: learners who doubt their ability to use the platform itself may disengage, so orientation and technical support are motivational interventions.

Achievement Goal Theory

Achievement goal theory distinguishes between mastery goals, focused on learning and improving, and performance goals, focused on demonstrating ability relative to others (Ames, 1992). Elliot and McGregor (2001) further distinguished approach and avoidance forms of each. Mastery goals are generally associated with deeper learning, persistence and interest, while performance-avoidance goals are associated with anxiety and disengagement. Application to digital learning. Designers should emphasise personal progress and improvement, for example through progress bars, mastery-based advancement and opportunities to retake quizzes. Public leaderboards can foster performance goals and discourage lower-ranked learners; where used, they should be optional, small-group or focused on personal improvement.

Attribution Theory

Attribution theory (Weiner, 1985) examines how learners explain their successes and failures. Attributions vary along dimensions of locus (internal or external), stability (stable or

changeable) and controllability. Learners who attribute failure to stable, uncontrollable causes such as low ability tend to lose motivation, while those who attribute it to controllable causes such as effort or strategy tend to persist. Application to digital learning. Feedback in digital systems should direct attention to effort and strategy rather than fixed ability. Clear explanations of why an answer is wrong help learners see failure as correctable. Technical failures, such as lost connections during a timed test, should be acknowledged so that learners do not misattribute them to their own inability.

Keller's ARCS Model

Keller's (1987) ARCS model is an instructional design framework that synthesises motivation research into four conditions: Attention (capturing and sustaining interest), Relevance (connecting instruction to learners' goals), Confidence (helping learners believe they can succeed) and Satisfaction (making learning rewarding). Keller (2010) extended the model specifically to e-learning. Application to digital learning. Attention can be gained through varied media, questions and short interactive segments rather than long passive videos. Relevance comes from authentic examples and links to learners' contexts. Confidence is built through clear objectives and achievable early tasks, and satisfaction through meaningful feedback, recognition and opportunities to apply new skills.

Flow Theory

Csikszentmihalyi (1990) described flow as a state of deep absorption in an activity, characterised by intense concentration, loss of self-consciousness and intrinsic enjoyment. Flow occurs when the challenge of a task is balanced with the person's skill. Application to digital learning. Adaptive learning systems and well-designed educational games can keep learners in the flow channel by adjusting difficulty to performance. Clear goals and immediate feedback, features that digital systems provide easily, are themselves preconditions for flow. Interruptions such as pop-up notifications, slow loading and poor connectivity break flow and should be minimised.

Maslow's Hierarchy of Needs

Maslow (1943) proposed that human needs form a hierarchy, from physiological and safety needs through belonging and esteem to self-actualisation, and that lower needs must be reasonably met before higher needs strongly motivate behaviour. Application to digital learning. Online learners who lack a safe, quiet place to study, a working device, electricity or data are unlikely to sustain motivation regardless of course design. Institutions that support

access, through device schemes, data bundles or offline resources, address foundational needs.

Self-Regulated Learning

Self-regulated learning (SRL) describes how learners plan, monitor and evaluate their own learning (Zimmerman, 2002). Zimmerman's cyclical model comprises a forethought phase (goal-setting, planning and motivational beliefs), a performance phase (self-control and self-monitoring) and a self-reflection phase (self-evaluation and attributions). Application to digital learning. Because online learners have more control and less external structure, SRL is especially important. Broadbent and Poon (2015) found that SRL strategies such as time management, metacognition and effort regulation were associated with achievement in online higher education. Digital environments can scaffold SRL with course calendars, reminders, goal-setting tools, learning dashboards and prompts for reflection.

COMPARATIVE SUMMARY AND DESIGN PRINCIPLES

Table 1

Summary of Motivation Theories and Implications for Digital Learning Design

Theory	Key proponent(s)	Core idea	Key design implication
Self-determination theory	Deci & Ryan (1985)	Motivation thrives when autonomy, competence and relatedness are met	Offer choice, clear progress and feedback, and active online community
Expectancy-value theory	Eccles et al. (1983)	Effort depends on expected success and task value minus cost	Show real-world relevance; start with attainable tasks; reduce costs
Self-efficacy	Bandura (1997)	Belief in capability drives effort and persistence	Frequent small successes, peer models, encouraging feedback
Achievement goal theory	Ames (1992); Elliot & McGregor (2001)	Mastery goals foster deeper learning than performance goals	Reward improvement and retakes; use leaderboards cautiously
Attribution theory	Weiner (1985)	Explanations of success and failure shape future motivation	Feedback that points to effort and strategy; explain errors

ARCS model	Keller (1987, 2010)	Attention, relevance, confidence and satisfaction sustain motivation	Varied interactive media, authentic examples, clear objectives
Flow theory	Csikszentmihalyi (1990)	Deep engagement arises when challenge matches skill	Adaptive difficulty, clear goals, immediate feedback
Hierarchy of needs	Maslow (1943)	Basic needs must be met before higher motivation	Support devices, data, offline access and belonging
Self-regulated learning	Zimmerman (2002)	Learners plan, monitor and reflect on their learning	Calendars, reminders, goal-setting tools, dashboards

Although the theories differ in emphasis, they converge on five design principles for digital learning: (1) support autonomy with structure, giving learners meaningful choices within a clear course structure with deadlines and guidance; (2) make value visible by explaining why each activity matters and connecting it to learners' goals; (3) build competence and confidence by sequencing tasks from attainable to challenging and providing frequent, specific feedback; (4) foster connection by designing for interaction with instructors and peers; and (5) develop self-regulation by providing tools and prompts that help learners plan, monitor and reflect.

IMPLICATIONS FOR DIGITAL LEARNING IN NIGERIA

Nigerian tertiary institutions increasingly use learning management systems, online examinations and blended courses, and open and distance learning programmes enrol large numbers of students. The motivation theories reviewed have particular implications in this context. Foundational needs and cost: erratic electricity, expensive data and limited device access mean that many learners' basic conditions for study are not secure, and the cost of digital learning is high. Course designers should keep resources lightweight, provide downloadable and offline materials, and avoid unnecessarily data-heavy media.

Relatedness in large classes is hard to achieve. Structured peer groups, moderated forums and messaging-application study groups can provide social connection at low cost. Competence and digital readiness: many learners and instructors have limited experience of online learning. Orientation programmes, simple and consistent platform design, and accessible technical support build technology self-efficacy and reduce early drop-out.

Relevance: linking online content to local examples, careers and community problems strengthens utility value. Assessment culture: examination-focused systems encourage performance goals. Incorporating low-stakes quizzes, opportunities for improvement and feedback-rich tasks can shift learners toward mastery goals. Educator preparation: effective digital teaching requires educators who understand motivation and can facilitate online interaction.

CONCLUSION

Motivation is the hidden engine of digital learning. Without the structure and social presence of the classroom, learners rely more heavily on their own motivation, and many disengage when it falters. Psychological theories of motivation, from self-determination and expectancy-value theory to self-efficacy, achievement goals, attribution, ARCS, flow, Maslow's hierarchy and self-regulated learning, offer complementary explanations of why learners engage and persist. Together they point to a coherent set of design principles: support autonomy within structure, make value visible, build competence and confidence, foster connection and develop self-regulation. Applied with attention to local conditions, these principles can help Nigerian institutions design digital learning environments that do not merely deliver content but keep learners motivated to learn.

RECOMMENDATIONS

1. Course designers and lecturers should apply motivation theories explicitly in designing online courses, using frameworks such as SDT and ARCS as checklists.
 2. Institutions should train lecturers in online facilitation, motivational feedback and community building in digital environments.
 3. Digital courses should include orientation programmes and self-regulation tools, such as calendars, reminders and progress dashboards.
 4. Gamification should emphasise progress, mastery and collaboration rather than public competition and controlling rewards.
 5. Institutions and government should address access constraints through subsidised data, device schemes, offline-capable platforms and reliable campus power.
 6. Researchers should empirically test these theories with Nigerian learners in digital environments to establish which motivational designs work best locally.
-

REFERENCES

- Ames, C. (1992). Classrooms: Goals, structures, and student motivation. *Journal of Educational Psychology*, 84(3), 261-271. <https://doi.org/10.1037/0022-0663.84.3.261>
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. W. H. Freeman.
- Broadbent, J., & Poon, W. L. (2015). Self-regulated learning strategies and academic achievement in online higher education learning environments: A systematic review. *The Internet and Higher Education*, 27, 1-13. <https://doi.org/10.1016/j.iheduc.2015.04.007>
- Csikszentmihalyi, M. (1990). *Flow: The psychology of optimal experience*. Harper & Row.
- Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. Plenum Press.
- Deterding, S., Dixon, D., Khaled, R., & Nacke, L. (2011). From game design elements to gamefulness: Defining "gamification". In *Proceedings of the 15th International Academic MindTrek Conference* (pp. 9-15). ACM. <https://doi.org/10.1145/2181037.2181040>
- Eccles, J. S., Adler, T. F., Futterman, R., Goff, S. B., Kaczala, C. M., Meece, J. L., & Midgley, C. (1983). Expectancies, values, and academic behaviors. In J. T. Spence (Ed.), *Achievement and achievement motives* (pp. 75-146). W. H. Freeman.
- Elliot, A. J., & McGregor, H. A. (2001). A 2 x 2 achievement goal framework. *Journal of Personality and Social Psychology*, 80(3), 501-519. <https://doi.org/10.1037/0022-3514.80.3.501>
- Jordan, K. (2014). Initial trends in enrolment and completion of massive open online courses. *International Review of Research in Open and Distributed Learning*, 15(1), 133-160. <https://doi.org/10.19173/irrodl.v15i1.1651>
- Keller, J. M. (1987). Development and use of the ARCS model of instructional design. *Journal of Instructional Development*, 10(3), 2-10. <https://doi.org/10.1007/BF02905780>
- Keller, J. M. (2010). *Motivational design for learning and performance: The ARCS model approach*. Springer. <https://doi.org/10.1007/978-1-4419-1250-3>
- Maslow, A. H. (1943). A theory of human motivation. *Psychological Review*, 50(4), 370-396. <https://doi.org/10.1037/h0054346>
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55(1), 68-78. <https://doi.org/10.1037/0003-066X.55.1.68>
- Sailer, M., & Homner, L. (2020). The gamification of learning: A meta-analysis. *Educational Psychology Review*, 32(1), 77-112. <https://doi.org/10.1007/s10648-019-09498-w>
- Weiner, B. (1985). An attributional theory of achievement motivation and emotion. *Psychological Review*, 92(4), 548-573. <https://doi.org/10.1037/0033-295X.92.4.548>

- Wigfield, A., & Eccles, J. S. (2000). Expectancy-value theory of achievement motivation. *Contemporary Educational Psychology*, 25(1), 68-81. <https://doi.org/10.1006/ceps.1999.1015>
- Zimmerman, B. J. (2002). Becoming a self-regulated learner: An overview. *Theory Into Practice*, 41(2), 64-70. https://doi.org/10.1207/s15430421tip4102_2