



Differentiated Instruction with Technology

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When planning on [developing student ICT capability in the classroom](#) it is essential that you do cater for the individual learning styles that exist. It is significant that you reflect on the impact of these learning styles and the role of ICT within them.

A learning style is a set of characteristics that influences the teaching approach of a teacher to a student.

Differentiation

Differentiation goes hand-in-hand with teachers being accountable for catering to different learning styles. It is a complex area which means the ability to match the level or type of task to the potential level of each child.

As teachers, we need to differentiate in the classroom because children are complex and the old teaching styles of the past just don't work and allow for all children to learn equally.

The lack of understanding about what differentiation is a key problem in the classroom. You must not believe it to mean the 'dumbing down' of activities. It is about you providing students choice to avoid discrimination.

Differentiation in Early Childhood Education

[Differentiation in the early years education](#) is important in learning environments found in preschool and kindergartens as child learning and development is paramount at this stage of life.

Early childhood teachers take the time to select different materials for each individual child to provide equal learning opportunities. It also then enables engagement with less boredom and frustration from children.

Differentiation can occur in the early childhood



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setting when they play. However, before you this happens it is essential that you know the children individually. Talk and listen to them so that you know what they are capable of doing.

An important technique to remember when laying out floor material is to ask yourself “Can all children use this?” Consider those who can and can’t.

Differentiation in Primary Education

Differentiated instruction in the primary classroom is just as imperative as it is in the early years. The Australian Professional Standards for Teachers now require that teachers must “Demonstrate knowledge and understanding of strategies for differentiating teaching to meet the specific learning needs of students across the full range of abilities”.

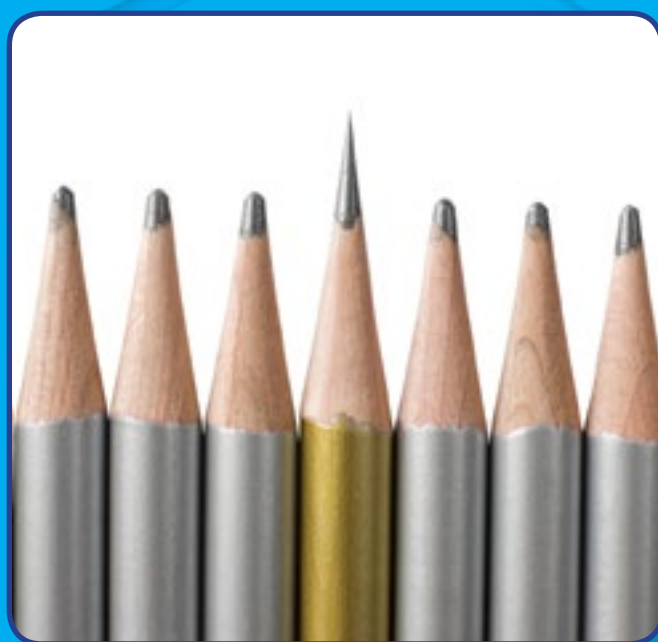
Every student is an individual who learns at different rates and in different ways. According to NESAs (2020), individual differences may include:

- Cognitive abilities, including students’ current level of understanding and ability in relation to a particular topic or skill
- Prior learning experiences
- Learning styles and preferences
- Motivation and engagement with learning
- Interests and talents.

When you plan for differentiation, you provide opportunities for students to:

- Demonstrate, in different ways, what they know, understand and can do at different points of the learning cycle
- Discuss with their teachers their preferred learning style and new ways of learning
- Explore, experiment and engage with the concepts and principles underpinning what they learn

Develop higher-order thinking and creative and critical thinking skills.



Learning Progression

Early childhood and primary education teachers need to ensure that children experience a curriculum that allows them to develop their own knowledge and skills as they grow older and mature.

Planning for learning progression in ICT capability requires that you are to have a good level of knowledge of each students' capabilities in ICT. This implies some sort of differentiated approach used to cater for the different learning styles of individual students.

Yet planning for learning progression in ICT capability is one of the many issues faced by early childhood and primary education teachers today. Teachers are challenged to plan ICT activities that can help their children develop ICT capability and ICT literacy.

Some of these difficulties are associated with lack of confidence with ICT while others are to do with how the ICT activities can be structured for learning progression across a series of applications.

ICT aids differentiation by providing students with opportunities to:

- Work on challenges appropriate to their abilities;
- Take a more active role in their own learning;
- Try out things without fear of being humiliated in front of their peers;
- Follow a flexible route towards the learning goals and;
- Maximise their independence as learners.

(Kennewell, Parkinson, & Tanner, 2000, p. 166)



Technology Features that Support Differentiated Instruction

Adapted from Smith and Throne (2007,p13)

Effective Instructional Strategies	Application to differentiated classroom	Related to Tech Tools
Recognising similarities and differences	Graphic organisers such as Venn diagrams and Comparison matrix. Represent similarities and differences in graphic or symbolic form. Sorting, classifying, and using metaphors and analogies.	Inspiration and Kidspiration Software Web-based/downloadable graphic organisers Word processing tables
Summarising information and taking notes	Beginning, middle, end Clarifying information Teacher-prepared and student-prepared comments. Webbing.	Cornell Note-taking forms Inspiration and Kidspiration software NoteStar Read-Write-Think Notetaker Word processing notes
Reinforcing effort and providing recognition	Effective praise and rewards. Effort and achievement rubrics and charts. Personalising recognition. Success stories of people who persisted during difficult times.	Kids are authors Microsoft Publisher certificates Online certificates Personal achievement logs Word processing feedback notes
Homework and practice	Planners and organisers. Vary student and teacher feedback.	Content-related software Homework help sites to extend learning beyond the classroom. Word processing planners and organisers.
Non-linguistic representations: Creating graphic representations Drawing pictures and pictographs Engaging in kinaesthetic activity Generating mental pictures Making physical models	Cause and effect organisers. Concept organisers. Drawing pictures, illustrations and pictographs. Physical models and movement. Time-sequence organisers.	Digital cameras Graph Club software PowerPoint software Excel spreadsheet Paint software Kid Pix software
Cooperative and collaborative learning groups by ability, interest and other criteria	Flexible groups by interest, learning style and readiness. Individual and group accountability. Vary groups by size and objectives. Think-pair-share strategy.	Group investigations Individual and group assessment Jigsaw groups Multimedia software Scavenger hunts ThinkQuests WebQuests

Effective Instructional Strategies	Application to differentiated classroom	Related to Tech Tools
Setting objectives and providing feedback	Learning contracts for achieving specific goals. Ongoing assessment. Praise Rubrics Self-assessment Student-led feedback Teacher feedback that timely, specific and constructive.	Electronic journaling Learning logs (MS Word) Project-based learning checklists RbuiStar and other rubric generators Word processing checklists Word processing contracts
Generating and testing hypothesis	Decision making Historical investigation Invention Making predictions Problem solving	PowerPoint slideshows Internet search Word or Publisher reports, mini-books, and advertisements
Questions, cues and advance organisers	Advance organisers Anticipation guides Cubing and ThinkDots Activities KWL charts Pause after asking questions.	Word narrative advance organiser Online or Word created KWL

Strategies for Differentiated Instruction in Literacy

When planning for [technology integration in your literacy lessons](#), it is important to understand that differentiated instruction is one of the key characteristics of an effective literacy-technology integration learning environment. It is what drives meaningful, purpose-driven instruction. According to Watts-Taffe & Gwinn (2007, p. 27), the goals of technology integration in literacy should be aligned with the following knowledge-base:

- What we know about the development of skills related to paper-and-pencil literacy.
- What you know about the specific needs of learners in a classroom, balanced with their specific strengths and current competencies.
- What we are learning both collectively as a field and individually in each of our classrooms, about the skills and strategies of the new literacies.

Differentiated instruction in literacy lessons is one such approach intended to meet the individual learning needs of all learners as they engage literacy-related learning experiences with technology. These teaching strategies are not just for struggling students who have trouble reading and writing. All students benefit from differentiated instruction as it builds on their strengths and interest in order to maximise their learning.

For example, the Internet and other ICTs can provide much support for teachers and students by opening up the door for learning experiences specific the needs and interests of individual students.

It is critical that your expectations of academic performance remains high and that the type of

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differentiation instruction that you provide promotes a high level of academic performance. The misconception that differentiation instruction means 'watered-down' instruction for those who are struggling or at risk, will result in these students falling behind their peers in their academic performance.

You can avoid this by including all students including struggling readers, English language learners, those who speak nonstandard dialects of English, in the development of higher order strategies.

Another way could be for you to identify specific areas of strengths and weaknesses related to reading and writing, instead of just assuming that a student with difficulties struggles with all aspects of literacy.

Lastly, provide all students with equal access to technology regardless of their current level of literacy achievement.

Learning Environment

To provide for the effective facilitation of differentiated instruction with technology Tomlinson (2001, as cited in Smith and Throne, 2007, p.219) believes that there are seven characteristics which include:

- Feeling welcomed
- Mutual respect is non-negotiable
- Students feel safe in the classroom
- There is a pervasive expectation of growth
- The teacher teachers for success
- A new sort of fairness is evident
- Teachers and students collaborate for mutual growth and success.

As a teacher, you can make classrooms ready for differentiated instruction by:

- Organising and placing materials in such a way that they're accessible to students (at eye level and with their grasp).
- Appealing to your students' five senses in



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other ways, such as the use of music or slide-shows as they enter the classroom to focus their attention on the topic of the lesson at hand.

- To meet the demands of flexible grouping, do the following:
 1. Allow for adequate space between tables or desks.
 2. Vary seating arrangements.
 3. Allocate a specific area of the classroom for group meetings, independent work, and free time.
 4. If possible, position technology in a spot that easily accommodates frequent use.

(Smith & Throne, 2007, p. 220)

Providing a range of levels of abilities in the class

A student's abilities consist of not one single attribute, but prior knowledge and experience of subject matter, ICT, literacy, numeracy and other key skills and learning styles. It is important that you build up a profile of each student's abilities and not base your expectations of what individuals can achieve either on the perceived ability of the whole class.

The strategies that you can use to cater for different abilities include (Kennewell, 2004, pp. 150-1):

Task – there can be different tasks or different variations of the same task set for different students. The tasks can cover the same topic, but the less able may have more limited learning objectives or they may be expected to address them in a simpler way.

Response – the same task is set for all students, but it can be completed successfully in many different ways. The most able students are encouraged to produce responses that are deeper, more complex, more detailed or wider-ranging than less able students.



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Support – the same task is set and the same sort of response is expected from all students, but the most able are expected to manage their own learning to a large extent so that the teacher's time can be spent providing scaffolding for the less able. This strategy can also be implemented by using mixed ability groups, so that much of the support for the less able can be given by the more able.

Resource – a variation of the above, in which students' work on the task is less dependent on scaffolding from the teacher, and depends largely on whether they can work independently with the resources.

How does ICT provide differentiation in these strategies?

All of the above strategies can take advantage of ICT as its features provide excellent support and resources for students.

Differentiation by Task

ICT can be used in the classroom for project-based learning and in this situation different students can be working on different aspects of the topic in their project. As a result, you can set project briefs suitable for particular students or groups.

Differentiation by Response

One of the prominent features of ICT is interactivity. This feature allows students to go beyond the basic learning objectives for the class as they make and test their own conjectures.

Differentiation by Support

As a teacher, you can support students in their understanding of topics by asking questions that probe into various aspects of topics or you can use the speed of ICT to switch between various resources such as video clips to help emphasise and clarify students' responses if they struggle to understand something.



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Differentiation by Resource

ICT can aid the teacher in preparation of a range of related resources in the same time that a single resource could be produced using manual methods.

Affordances and Scaffolding

Key factors in the delivery of differentiated instruction with technology is the affordances and scaffolding which you provide as a teacher. Regardless of what level of education you provide these principles and strategies should always be the same to ensure progression and continuity.

When looking at affordances we would be referring to the potential for action, the capacity of an environment or object for students to achieve their goals within a particular problem situation. These would include opportunities given to the student by the technology in support of a task, the support provided you as the teacher and the contextual support.

Intentional support in the form of scaffolding is also included in these affordances. Scaffolding helps students build on their knowledge they've mastered and the skills they've already developed. They need scaffolding to assist them with some technology you incorporate into the activity because they haven't learned how to operate it or can't use it effectively.

Scaffolding may also be important to those students who are technologically challenged and this can be addressed by using technological devices to frame the learning activities you develop, to embed them so that they seem to be a natural part of student tasks. Such an example would be to include WordArt, hyperlinks, highlighting, comment boxes or embedded objects in the documents you create.

It is important to note that there must be gap between the student's abilities and the problem situation if learning progression is to occur. You



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can close this gap by adding the affordances to the environment such as providing an information sheet to assist the students to use the software or even providing a clear demonstration on a big screen. You would need to follow this up by asking a series of structured leading questions or by organising a class discussion on the results.

The manipulation of these affordances in relation to the students' existing abilities to facilitate learning is central to your role as a teacher. If you have a manageable gap between affordances and abilities in areas of techniques and processes then learning progression will occur. If you leave little to no gap, then only learning progression in the subject will occur and not ICT capability.

Examples of Differentiated Instruction

Here are some examples to get you started:

1. Give middle of pack learners freedom.
2. Turn students into teachers with presentation tools.
3. Encourage collaboration with tools such as Google Docs or Prezi.
4. Use learning games to engage students outside of small groups.
5. Record peer tutoring groups to review later.
6. Provide them with differentiated project options.

For more examples visit these webpages:

<http://blog.whoosreading.org/10-ways-to-differentiate-instruction-with-technology/>

<https://www.edutopia.org/blog/enhanced-learning-through-differentiated-technology-julie-stern>

http://blogs.edweek.org/teachers/classroom_qa_with_larry_ferlazzo/2018/06/response_ways_to_use_tech_to_differentiate_instruction.html

<https://www.aeseducation.com/blog/9-tips-using-technology-differentiate-instruction>



References

Beauchamp, G. (2012). ICT and the Teacher: Pupils, Planning and Inclusion. In G. Beauchamp, ICT in the Primary School, from Pedagogy to Practice (pp. 155-156). 69-74: Routledge.

Ferlazzo, L. (2020, March 25). Response: Ways to use Tech to Differentiate Instruction. Retrieved from Education Week Teacher: http://blogs.edweek.org/teachers/classroom_qa_with_larry_ferlazzo/2018/06/response_ways_to_use_tech_to_differentiate_instruction.html

Kennewell, S. (2004). Preparation and evaluation of resources. In S. Kennewell, Meeting the standards in Using ICT for secondary teaching (p. 146). New York: Routledge Falmer.

Kennewell, S., Parkinson, J., & Tanner, H. (2000). Developing ICT capability. In S. Kennewell, J. Parkinson, & H. Tanner, Developing the ICT Capable School (pp. 36-55). London: Routledge Falmer.

Kennewell, S., Parkinson, J., & Tanner, H. (2000). Sharing perspectives across the phases of schooling. In S. Kennewell, J. Parkinson, & H. Tanner, Developing the ICT Capable School (pp. 165 - 176). Routledge Falmer.

Raki, H. (2020, March 25). 10 Ways to Differentiate Instruction with Technology. Retrieved from Who's reading the Blog: <http://blog.whoos-reading.org/10-ways-to-differentiate-instruction-with-technology/>

Smith, G., & Throne, S. (2007). Using Technology to Manage your Differentiated Classroom. In G. Smith, & S. Throne, Differentiating Instruction with Technology in K-5 Classrooms (pp. 218-227). ISTE.

Watts-Taffe, S., & Gwinn, C. (2007). The Learning Environment for Effective Literacy-Technology Integration. In S. Watts-Taffe, & C. Gwinn, Integrating Literacy and Technology: Effective Practice for Grades K-6 (pp. 26-40). Guilford.