How to

An Evidence-Based Guide to Embedding Physically Active Learning in Your School

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Foreword

Why do we sit children down to learn?

As you let that question resonate, perhaps I might be able to shed light on the reason why. Since Victorian times, the school system has aligned to prepare children to succeed in exams. Sadly, the promotion of a testing culture has detrimentally impacted their physical, social and emotional health. Surely there has to be another way; an education system that values a child's holistic development, equally balancing their health with academic outcomes.

Despite COVID-19 shining a light on the wide-ranging importance of physical activity, the government narrative reinforced academic outcomes as the 'catch-up' priority,¹ largely ignoring students' physical and wider well-being needs and the ultimate impact they have on children's personal and academic development. Yet all is not lost; emerging from among the debris are pioneering teachers, schools and educational establishments who place their students' needs at the centre of the learning experience. While the term 'pioneer' is often bandied about, I do not use it lightly in reference to Bryn, Ian and Richard.

From our first encounter, Bryn showed passion and integrity in his mission to improve schools and classrooms. Having worked with over 300 schools, his knowledge and experience of embedding physically active learning (PAL) into everyday teaching practice is unrivalled. Six years on from our first meeting, I had the honour of presenting a TEDx Education talk on PAL with Bryn.² We called for a paradigm shift – this book could provide the impetus. Next, I met Ian, a pioneering head teacher who was prepared to rip up his school's timetable and integrate physical activity where most would least expect. Leading organisational change and building a new school culture that embraces physical activity takes time. Throughout his journey, Ian has shared his learning on an international stage and, more recently, has taken up the mantle of leading the implementation of the UK-based Creating Active Schools (CAS) Framework.³ The final musketeer, Richard, was a pioneering

¹ C. Scutt, 'Catch-up' and recovery approaches: selected reading, Research Hub (n.d.). Available at: https://my.chartered.college/research-hub/catch-up-and-recovery-approaches-selected-reading/.

B. Llewellyn and A. J. Daly-Smith, Physically active learning – improving performance [video], TEDxNorwichED (16 July 2018). Available at: https://www.youtube.com/watch?v=tARSCzHLF5g.

³ See https://www.creatingactiveschools.org.

teacher who empowered teachers within his school and wider trust to embrace physical activity approaches throughout the school day. As with Ian and Bryn, he sought to learn from evidence-based research and practice, to develop innovative solutions to support teachers – particularly in relation to the adaptation of classrooms and use of wider school spaces as active learning environments.

Leading a multi-country European project on school-based physical activity, I have met many PAL pioneers. The knowledge, skills and experience that Ian, Bryn and Richard possess place them at the forefront of international practice. To date, few teacher educators have bridged the research—practice gap. It is only by underpinning teaching practice with the latest research that we will make impactful and sustainable change within the education system. While their mission to embed PAL within schools has grown in prominence, it has not come without its challenges. In 2018, after the National Association of Head Teachers passed a motion to embrace PAL by 92%,⁴ the national press was less convinced, writing 'Let children run around in class, headteachers told'.⁵ What followed was a barrage of uneducated abuse – yet, undeterred, the musketeers stuck to their mission. The rich advice that follows in this book is testament to their perseverance and excellence.

How to Move & Learn seamlessly integrates research with rich practical experience from training teachers in over 400 schools. Beginning with teachers, the book draws on the latest behaviour change theory to support you to embrace PAL and integrate it within your teaching practice. What makes the Move & Learn concept unique is the integration of behaviour change theory and educational principles. Combined, they move PAL beyond its simplistic origins that aimed to get children moving more, to PAL's contribution as an engaging pedagogical approach within a more holistic educational experience. The beauty of this book resides in the bite-size chapters written to provide a teacher who is new to PAL with simple starter ideas. Similarly, the book will appeal to more advanced PAL practitioners who wish to enhance what they do and how they do it.

So, it is time to begin your Move & Learn journey. First, though, some tips I have learned through my work with teachers and schools on physical activity: start simple, have a go and don't give up if it doesn't work the first time. As you become

⁴ Tagtiv8, Trying to influence the decision makers – NAHT & beyond (n.d.). Available at: https://tagtiv8.com/influence-the-decision-makers/.

⁵ C. Turner, Let children run around in class, headteachers told, The Telegraph (May 2018). Available at: https://www.telegraph.co.uk/news/2018/05/04/let-children-run-around-class-headteachers-told/.

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comfortable with PAL, read the final chapter; this focuses on taking a whole-school approach in order to create impactful and sustainable change in our schools. The vital lessons within this chapter will support you to look beyond your own teaching practice – hopefully empowering you to influence other key stakeholders (fellow teachers, senior leaders, parents) to adapt their approach to making physical activity an enjoyable and habitual part of every child's day.

All that is left to ask is a simple question: what will you do differently tomorrow to help your children Move & Learn?

Dr Andy Daly-Smith Reader and co-director of the Centre for Applied Educational Research, University of Bradford

Acknowledgements

As the saying goes, it takes a village to raise a child. The same can be said of creating and nurturing this book. Where do we start? At the beginning (a very good place to start); in this particular case it was Leeds – a city synonymous with leading the way, though not necessarily from the front.

As practitioners, we are well-versed in matters regarding school leadership and teaching. What we lacked were connections with researchers – local, national and international; step forward Dr Andy Daly-Smith, who kick-started the movement and has been an inspiration ever since. Further academic rigour and inspiration come courtesy of Dr Anna Chalkley, Dr Victoria Archbold and Professor Geir K. Resaland. Their robust research methods, explanations and support have certainly helped us understand more about behaviour change and how research can empower us to enhance practice for the benefit of more children.

We are indebted to school leaders and teachers for pioneering ideas and providing case studies:

- Paula Manser and her colleagues at Birkby Nursery and Infant School.
- Jez Whawell and his colleagues at Westerton Primary Academy.
- Alun Davies and teachers at Queensway Primary School and Melton Primary School.
- Chris Willan and his team at Water Primary School.
- Chris Dyson and all at Parklands Primary School.
- Chris Tolson, Niall O'Brien and the team at Academy St James' Bradford for championing PA and PAL locally and nationally.
- Nicola Roth and everyone at Lilycroft Primary School, Bradford.

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- Jo Rhodes from Challenge 59.
- Henry Dorling.

- Juliet Robertson.
- HundrED.
- Michael Follett and the OPAL team.

We believe that you need to surround yourselves with awesome people who lift you up to a level beyond that which you thought you could achieve. With this in mind, we offer massive thanks to David Bowman and the team at Crown House Publishing – your patience knows no bounds. Thanks too to Buzz Burman for seeing things differently and creating the graphics.

Last, but by no means least, thank you to our families and friends for an ongoing blend of support and provocation:

- Kudos and hugs from Bryn to Dimitra, Joe, Ben, Andreas, Konstantinos, Robin and David.
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- Richard would like to thank the children, teachers, mentors and innovators that he's learned from since 2010.

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Chapter 1

An Introduction to Move & Learn

To Move and/or Learn?

When we have asked those with whom we work, 'What does learning look like?', most responses for children over the age of 6 outline students sitting at desks focusing on a 'learning stimulus' (e.g. teacher with/without an interactive smartboard). However, if 'learning happens when people have to think hard',¹ as outlined by the Great Teaching Toolkit,² do we also have evidence showing that we can think harder when sedentary? We already know that increased physical activity and reduced sedentary time have wide-ranging benefits (including brain function), so what if we could show evidence that using movement in the learning process improves outcomes for children? What if we could then outline ways to support you (the practitioner) in adapting your practice to make this a reality? This book aims to do just that, providing you with the capability, opportunity and motivation to integrate movement purposefully into the learning process for those you teach. As teachers and school leaders, we have an opportunity to choose:

- An approach to learning that improves academic attainment as well as health and well-being outcomes, rather than seeing the two as mutually exclusive.
- To raise educational standards while bringing the joy of learning to our children.
- A culture of collaboration, curiosity and creativity.
- To be the teacher of the children who can't wait to tell others how and what they have learned today.
- To Move & Learn.

¹ R. Coe, What makes great teaching?, *Centre for Evaluation & Monitoring* (31 October 2015), p. 13. Available at: https://www.ibo.org/globalassets/events/aem/conferences/2015/robert-coe.pdf.

² See https://www.greatteaching.com.

Through this book – and our supporting continuing professional development (CPD) programme – we will:

- Highlight the benefits of Move & Learn and why you should incorporate it into your teaching and children's learning.
- Share knowledge, ideas and resources on how to integrate Move & Learn purposefully into lessons.
- Identify barriers to implementing Move & Learn and provide practical solutions.
- Connect practitioners to the latest research so that they can evolve their teaching practice in line with the most successful evidence-based approaches.

As a result, we seek to empower you and your school community to integrate movement as a key part of teaching and learning – to bring health and education together for the long-term benefit of the children we serve – to Move & Learn!

Move & Learn – what it is and what it is n't

Strategies that integrate movement into learning have been around for a long time and are often referred to as PAL in both research and practice. PAL has recently been defined by researchers as 'the integration of physical activity into lessons in learning areas other than physical education (PE)'³ and has been explored as a potential method of increasing activity in schools without detriment to educational time. If you walked into a staffroom or teacher training event and asked those present what PAL is and whether they had used such approaches with children in their class, you would probably get one or more of the following responses:

 'Why would I want to let children run around the classroom? It would be dangerous and cause chaos!'

³ A. J. Daly-Smith, S. Zwolinsky, J. McKenna, P. D. Tomporowski, M. A. Defeyter and A. Manley, Systematic review of acute physically active learning and classroom movement breaks on children's physical activity, cognition, academic performance and classroom behaviour: understanding critical design features, BMJ Open Sport & Exercise Medicine 4(1) (2018): DOI.10.1136/bmjsem-2018-000341.

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- 'Children get plenty of time to be physically active during break time, lunchtime, PE and clubs. They don't need it during lessons, especially not maths and English!'
- 'How am I meant to get them to sit down, listen and focus on their learning if they are being allowed to move?'
- 'Where can I fit this in? There's just not enough time in the day!'
- What about Ofsted? What will they say?'

These views are the first set of barriers to the successful implementation of Move & Learn strategies in any setting, and therefore it is essential to address both concerns and misconceptions so that they can be used purposefully and effectively by practitioners to enhance outcomes for children. Firstly, it is crucial that we understand what we mean by movement in the context of learning. Does it include:

- Sitting up straight as we need to use our core muscles to do this?
- Handwriting as we are moving our arms and hands, and again using our core muscles to sit appropriately?
- Other fundamental movement skills that we often see during PE lessons, school sport or through children's play (e.g. running, pushing, pulling, throwing, catching, balancing, climbing, digging)?

Let's consider this in the context of the widely accepted definition of physical activity: 'Any bodily movement produced by skeletal muscles that results in energy expenditure.'4

This already outlines that movement will sit on a spectrum, as a child will expend more energy playing tig for 15 minutes than they will sat still (although they may still be making minor movements to support the way they are sitting). However, this definition frames physical activity as a specific mechanistic act, and a recent paper has amended this definition for teachers, researchers and policy-makers to acknowledge the 'dynamic, complex and evolving array of reasons and emotions' involved in physical activity in the 21st century.⁵ Piggin goes on to recommend

⁴ C. J. Caspersen, K. E. Powell and G. M. Christenson, Physical activity, exercise, and physical fitness: definitions and distinctions for health-related research, *Public Health Reports* 100(2) (1985): 126–131.

⁵ J. Piggin, What is physical activity? A holistic definition for teachers, researchers and policy makers, Frontiers in Sports and Active Living 2 (2020): 72.

that we consider physical activity as: 'People moving, acting and performing within culturally specific spaces and contexts, and influenced by a unique array of interests, emotions, ideas, instructions and relationships.'

We have used this definition in relation to our Move & Learn strategies, as it also explores the cognitive and emotive elements of physical activity, which are hugely relevant to its purposeful use in the learning process and for children in the 21st century. Its reference to spaces and contexts highlights the need for practitioners to consider the intensity and type of physical activity used when integrating movement into learning based on the relevant physical (e.g. classroom, hall, outdoor space) and social environments (e.g. class dynamics, staff dynamics) available. We can consider the spectrum of physical activity in a learning environment with some simple examples:

Sedentary – no or minimal physical activity	Light physical activity (LPA)	Moderate-to-vigorous physical activity (MVPA)
Sitting ⁶ – whether it be on the carpet, on a chair or at a desk	Balancing and stretching (body shapes) Casual walking/ movement over short distances for a short period of time	Brisk walking Running Skipping Climbing Digging Jumping Dancing Throwing and catching Pushing and pulling

⁶ Official definition also includes reclining and lying: M. S. Tremblay, S. Aubert, J. D. Barnes, T. J. Saunders, V. Carson, A. E. Latimer-Cheung et al., Sedentary Behavior Research Network (SBRN) – Terminology Consensus Project process and outcome, *International Journal of Behavioral Nutrition and Physical Activity* 14(1) (2017): 75.

We can then think about how appropriate the type of physical activity is to the physical environment (spaces and places available) and social environment (how children and teachers engage and support each other with the process) before deciding on how, when and whether it should be blended with academic content. You would never plan a running relay race in a classroom with desks, for example – whether they be in groups or rows – in order to collect facts on a new aspect of learning. You would need to take the learning to a more suitable space (hall or outdoors). Alternatively, if using the classroom, you might post facts on the walls and allow small groups of children to walk to collect them (modelling effective behaviour for others), before then sharing this information with the whole class. Taking into account these physical and social environmental factors, we would define the Move & Learn approach as a learning sequence that either directly or indirectly incorporates an appropriate type of physical activity to enhance the learner's development. We can unpick this definition further:

- Learning sequence: This highlights that we recognise it is unlikely that integrating movement for a whole lesson will genuinely benefit the learner; therefore, it is important to consider when in the process it is used and when being able to sit is actually more purposeful for learning.
- Directly or indirectly: This references the point that sometimes movement will be directly linked to the learning process (e.g. retrieving information from around a classroom to use in the next phase of learning), and sometimes movement will be indirectly linked (e.g. 5-minute movement break to allow children to reset and refocus during complex problem-solving tasks).
- Appropriate type of physical activity: This links to the type of movement (e.g. walking, running, jumping, stretching) and considerations of the physical and social environments in place.
- Enhance the learner's development: This is essential as, ultimately, by integrating movement, the learner should benefit more than they would by using traditional sedentary methods. This will hopefully be in relation to academic attainment, but provided academic attainment is not negatively impacted, the benefits could be related to improved focus, engagement, enjoyment and wider well-being.

We believe it is key that all of these elements are taken into consideration when planning how to Move & Learn, and we will explore this in more detail in Chapter 3. So, what does this look like in practice? This could be as simple as:

- A child making body shapes behind their desk to represent different multiple-choice answers when reviewing learning.
- A child doing star jumps on the spot in the classroom as they recite their four times tables.
- A child writing letters or words in chalk on a playground.
- A child building their own representation of a 2D or 3D shape using sticks, twigs and twine from the forest area.
- Children moving around the school grounds outside, searching for clues as a team to solve a problem.

Ultimately, Move & Learn is about finding opportunities to reduce sedentary time and increase physical activity while enhancing learning and the learning experience for children. The impact of this approach will be explored in more detail throughout this book, but for now just consider the following responses from teachers and children who have decided to embrace it.

During an outdoor maths session that involved children breaking place value numbers into separate movements, Mark Stephenson, a Year 3 teacher at Lanchester EP Primary School in Durham, revealed: 'I didn't know he could do that! He has never shown me that he understands that particular concept in a maths lesson or written it in his maths book.' According to Alun Davies, head teacher at Melton Primary School in Suffolk, this approach 'engages even the most reluctant of learners and inspires discussion beyond that achieved in the traditional classroom.' The reference to reluctant learners is an interesting one and seems to be borne out in the comments and feedback provided by children. According to Kian, a Year 5 child in Keighley: 'That game was awesome. It takes a lot to get me to do maths.'

Our Move & Learn approaches also seem to have an impact on changing attitudes to learning and confidence, particularly engaging reluctant learners in new ways of learning – as seen on the sweaty, happy face of Ethan, a Year 5 child in Leicester, at the end of an incredibly active session in the school hall: 'I used to think I was rubbish at maths, but now I know I'm not.' Why does this happen? As one higher level teaching assistant (HLTA) in Leeds said, 'I get this – it makes learning sticky.'

Our final quote, from Maisie, a Year 5 child in Bradford, brings us back to the Great Teacher Toolkit reference about learning, highlighted at the beginning of this chapter: 'I am so proud of myself. I didn't think I could think that hard.'

How to use this book to Move & Learn

Our intention is that this book is used to support your CPD in regard to implementing and embedding Move & Learn strategies into your practice. Different sections can be used depending on your needs or interests as a practitioner, and where you and your school are on your Move & Learn journey. We will achieve this by considering our Move & Learn culture and ethos, approaches, resources and environments (CARE) model:



Culture and ethos

We will examine the strategies and favourable conditions needed in an organisation's culture and ethos (including their vision and values) in order to recognise the benefits of Move & Learn and ensure that it is a key driver within a school's long-term improvement plan. This is covered in Chapter 2, where we will consider the perspective of a school's intent (vision), implementation and impact⁷ in

⁷ Ofsted, Education Inspection Framework (May 2019), p. 9. Available at: https://www.gov.uk/government/publications/education-inspection-framework/education-inspection-framework.

relation to Move & Learn strategies, so that practitioners are confident that the quality of education they are providing is of the highest standard for those they teach.

Approaches, resources and environments

The ARE acronym in the education profession most commonly stands for 'age-re-lated expectations' – a term that Ofsted, school leaders and teachers often focus upon. However, we think of ARE in terms of approaches, resources and environments; we will consider how Move & Learn strategies can be integrated into a high-quality teaching approach with supporting resources and adapted environments that still lead to the best possible outcomes for children. Chapters 3 and 4 explore the different ways Move & Learn strategies can be incorporated into existing teaching, and how they link with current pedagogy and evidence-based practice. Chapter 5 will highlight how to take these approaches into different environments, and also identify ways of adapting your school setting and setting up supporting resources in order to ensure effective delivery.

The CARE acronym was unintentional, but it certainly fits our Move $\ensuremath{\mathcal{C}}$ Learn agenda on many levels.

Whole systems change

Finally, in Chapter 6 we will reflect on how movement within curriculum lessons fits within the wider school context, considering the CAS Framework⁸ and how to plan your own – and hopefully your school's – next steps to success in ensuring we all Move & Learn more often.

Moving along

At the end of every chapter, there is a section entitled 'Moving along'. This is your opportunity to explore the key points in the chapter with your colleagues and to think more deeply about how you can effectively implement this in your own setting. This may support senior leadership team (SLT) and/or other professional

⁸ A. J. Daly-Smith, T. Quarmby, V. S. J. Archbold, N. Corrigan, D. Wilson, G. K. Resaland et al., Using a multi-stakeholder experience-based design process to co-develop the Creating Active Schools Framework, International Journal of Behavioral Nutrition and Physical Activity 17 (2020): 13.

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development meetings within your school and wider network. To help the process, we have used these headings:

- Questions and tasks: These are intended for SLT/CPD meetings.
- Small steps, big difference: Some simple suggestions to help you take the next step(s) on your Move & Learn journey. Consider this as your opportunity to implement a marginal-gains approach, as championed by Sir Dave Brailsford. This was used by the head of British Cycling to improve performance in tiny incremental steps, leading to success for the cyclists in the team. Alun Davies, head teacher at Melton Primary School in Suffolk, says, 'it's easier to improve 20 things by 1% rather than one thing by 20%. It's more sustainable as it's less damaging to staff and less likely to have a negative impact on other areas. How often do we see schools have a big push on reading, writing or maths in sequence, only to see each one in turn drop off?'10

You may find it useful to document or record this process so that you can reflect and adapt your practice; this could be through a CPD log or by recording it on audio and/or video. Here is the first 'Moving along' section for you to work through:

⁹ J. Clear, This coach improved everything by 1 percent and here's what happened (n.d.). Available at: https://jamesclear.com/marginal-gains.

¹⁰ Personal correspondence.

Chapter 1

An Introduction to Move & Learn - Moving along

R Lesks

- 1. Can you explain the definition of the Move & Learn approach to a colleague?
- 2. How do you personally feel about incorporating movement into your classroom/learning environment? Explore why with a colleague and draw up a list of both positives and potential challenges to overcome.
- 3. Can you think of ways you could incorporate movement purposefully into your teaching?
- 4. Watch the TEDx Talk entitled 'Physically Active Learning Improving Performance'. 11 Talk about the content and issues with colleagues.

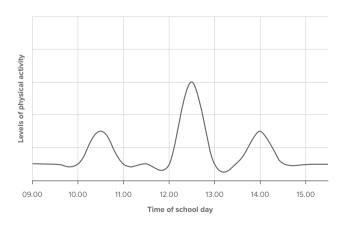


¹¹ Llewellyn and Daly-Smith, Physically active learning – improving performance.

small steps big difference

Based on what you have learned in this chapter, here are two simple ideas to try:

- 1. Take a small group of children and/or a colleague for a walk around the school grounds.
 - Discuss what they have learned so far that day and how they feel about it. This could be as part of a lesson or during break time.
 - Reflect on what you and they have got just from walking, talking and sharing.
- 2. Construct a simple line graph (see the following example) the x-axis showing the time from the start to end of a school day, and the y-axis showing the level of physical activity (low to high). Draw a line to represent a typical day for your students. This line graph can be your baseline. Repeat this task as you implement different Move & Learn strategies to see the impact they have on the physical activity levels of the children. You could create a generic line graph for the school as a whole, or separate ones for each key stage/phase.



A practical guidebook that provides primary school teachers and leaders with the know-how and confidence to embed more movement-based approaches in their teaching and learning.

We already know that increased physical activity and a reduction in the time spent sitting at desks have wideranging benefits (including to brain function), so what if there was also evidence that using movement in the learning process improves outcomes for children? What if we could then map out ways to support teachers in adapting their practice to make this a reality?

In this book Bryn Llewellyn, Ian Holmes and Richard Allman do just that – sharing the latest research from around the world and providing teachers with the means and motivation to identify opportunities to integrate movement purposefully into the teaching and learning process.

The links between health and education are paramount and this book explores these connections, presenting a wealth of ideas, activities and resources to help teachers unlock the potential of both the school and outdoor environments for learning across all curriculum subjects.

Suitable for all primary school teachers and leaders.

This persuasive book will help those who want schools to be fit for purpose and our young people fit for learning.

Mick Waters, Professor of Education, University of Wolverhampton

In the quest for more physically active schools, classrooms and students, How to Move & Learn is the next must-have book on the topic!

Mike Kuczala, speaker, professional developer and co-author of The Kinesthetic Classroom series

This book is about changing learning and teaching for the better. The authors call for all educators to 'move and learn' with the times and ensure that physical activity is an everyday part of their lessons.

Juliet Robertson, author of *Dirty Teaching* and *Messy Maths*

A super book and every teaching hub should be buying and distributing multiple copies.

Tim Brighouse, former Commissioner for London Schools

Finally, we have a book which endorses what every teacher knows – children learn better when they move!

Alison Kriel, leadership consultant, keynote speaker and founder of Above & Beyond Education

Bryn Llewellyn is the founder of Tagtiv8, having previously worked in various UK schools for 25 years as a teacher and school leader. His pioneering approach to physically active learning (Move & Learn) not only provides an enjoyable alternative to classroom-based learning, but also promotes physical activity – crucial when challenging the increasing problem of sedentary lifestyles. Bryn acts as an advisor to both the BBC and the Premier League on their education content. **@tagtiv8 @moveandlearnuk**

lan Holmes is a former head teacher who ensured that physical activity and its related benefits sat at the heart of his school's culture and ethos. He is passionate about supporting schools to embrace a whole systems approach to physical activity and well-being in order to improve physical activity habits, attitudes and behaviours. He is currently working for the University of Bradford, ensuring research and practice are brought together in the implementation of the Creating Active Schools programmes at local, regional and national levels. @ianmarkholmes @moveandlearnuk

Richard Allman is a former specialist leader of education and senior leadership team member. As a PE specialist, he delivered CPD to school leaders, teaching staff and initial teacher training students. Richard is passionate about empowering primary school practitioners to integrate purposeful physical activity into classroom pedagogy.



Education Teaching Skills and Techniques