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## A Theoretical Model of Intergenerational Tutoring

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What do we mean by “intergenerational learning”? Peacock and Talley ‘s (1984) definition still has much to recommend it: “An intergenerational program is a planned intentional interaction of different age groups, infant to elderly, in a variety of situations at a level that provides close communication, sharing of feelings and ideas and co-operative activity in meaningful tasks.”

Similarly, the European Network of Intergenerational Learning defines IL as: “A learning partnership based on reciprocity and mutuality involving people of different ages where the generations work together to gain skills, values and knowledge” (<https://enil.eu>). It can be argued that intergenerational learning is a way of enhancing intergenerational solidarity – it helps to develop social capital and social cohesion in our ageing societies.

Of course, intergenerational learning may develop around any shared interests and experiences. Here, however, we focus on intergenerational learning through deliberate tutoring. At its simplest, this is any interaction between any adult (male or female) (including parents and carers) and a child which is *intended* to result in the child learning something. However, it may have reciprocal effects, so that serendipitously the adult learns something too. Alternatively, it may be reciprocal tutoring, where adult and child take turns being the tutor. It can also mean learning over not one but two generations – for example, children interacting with a grandparent and both learning something from it.

The model described here is principally a psychological model rather than a sociological model. That is, it is more preoccupied with the processes occurring within and between participants than with processes occurring between participants and their surrounding social context. There are 16 elements in this theoretical model of intergenerational tutoring (see Figure 1). More could be found, but these seem to the author to be most important. They are all supported by research evidence in the literature. However, the sequence of these 16 elements in this particular order is the novel aspect of this paper, and is developed from the author’s long experience of intergenerational tutoring – although the sequence may not be followed in exactly this order by all those involved. One element follows another at the beginning, then there are five which are of equal weight and interact. Then nine further elements follow in linear sequence. Each element is discussed in turn. A

most important point is that both partners can be expected to benefit in all these ways – both as notional tutor and as notional tutee.

INSERT FIGURE 1 ABOUT HERE

Of course, not all tutorial partnerships will show all these features when they are first developing. Some may not show many features even when somewhat developed. The purpose of the theoretical model is to enable tutoring partners (perhaps with professional help) to see what new functional areas their relationship might develop into next. A more elaborate relationship is likely to be more satisfying for both tutor and tutee, and lead to enhanced educational outcomes. The model also gives professionals a framework within which they can counsel partners towards more effective experiences. Thus, it has strong practical implications for improvement of tutoring quality. It also has implications for research. The design of new tutoring interventions to be evaluated could be tested against this model, to ensure all aspects had been considered. The other question is which of these elements might be the most effective in any particular context. Research could possibly investigate the relative efficacy of each part of the model, while holding the other parts constant, but this would only be relevant to the context in which the tutoring was occurring. It may be that the whole proves greater than the sum of its parts.

### **Organization**

Some intergenerational tutoring may occur by chance, but in busy families there probably needs to be a conscious effort to organize the time for it to occur. If intergenerational tutoring is to occur outside the home, an issue is the availability of professional time (teachers often being preoccupied with delivering the official curriculum, for example). Teachers or other professionals involved in delivering intergenerational tutoring programs will realize that intergenerational tutoring is an informal kind of learning, different from the formal learning the teacher could provide, and an enhancement in the total learning diet of the participants. Nonetheless, it still often makes demands on the time of teachers or other professionals – in terms of organization, management, quality assurance and monitoring (Evertson & Weinstein, 2011).

The issues of gender and race can also present problems. First, gender – should you pair with the same gender or mix genders, or does it not matter? There is no one right answer here. The main issue may be how to engage male adults, since often more females volunteer for such activities.

Nonetheless, the presence of a male tutoring figure is particularly important for boys, but may also be important for girls (Villas-Boas, Oliveira, & Ramos, 2015).

Second, race – should you try to pair participants of the same race, or does it not matter? One problem here is determining exactly how the participants are located in terms of race, which might depend on how recently they have arrived in the host country. This might not be an issue for participants who have generations of experience of the host culture and speak English as a first language. However, many recent immigrants might call themselves citizens of their new country, but their culture and beliefs might still owe much to the country of origin of themselves or their parents. This may lead to issues of acceptance, such as an old male tutee struggling to accept a young female tutor, which in their original culture could be seen as degrading to the tutee. Further, even within one country there are often a great many cultural and religious differences. So, you cannot assume that because both participants came from the same country, they will be well matched – indeed, sometimes quite the opposite (Gadsden & Hall, 1996; Young & Janke, 2013).

In any event, what organizing time for intergenerational tutoring will do is enable the participants to get together and focus on the task(s) in hand. This has an effect on attention and concentration (Anderson, 2005). Very young children may not be good at attending and concentrating, but indeed neither may very old people.

### **Conflict and Co-construction**

From Organization we proceed to truly psychological variables. Conflict and Co-construction are very much part of informal learning (Granott, 1993). Conflict is a clash of opposite opinions, which need to be worked through and resolution found. Co-construction is collaborating with others in building knowledge together – jointly investigating, analyzing, interpreting and reorganizing.

When the pair first meet, they will need to talk to decide their first area of inquiry. Then they will need to find out where each other is in their area of inquiry. What they will discover is not only that the knowledge of both is somewhat patchy, but that the tutee (and maybe the tutor!) holds some ideas very dear which are not helpful – in fact, they are wrong, or at best unduly simplistic. What will follow is a somewhat heated conversation where the pair try to determine a consensus on what they both already know about the subject which is actually correct. This is known as a period of “cognitive conflict” – disagreement about thinking.

Once the pair have established this baseline, they are in much better shape to proceed to build correct knowledge which is new for the tutee (and maybe for the tutor). However, this will be done gradually, and result in the tutee (and maybe the tutor) re-tuning their existing knowledge into something more complex and refined, adding new elements to it in a way that coheres rationally with what is agreed to be already known, or perhaps even restructuring existing knowledge to accommodate the new knowledge. This kind of “cognitive co-construction” by mutual agreement leads to a state known as “inter-subjectivity” or shared understanding (for this area of inquiry) between the pair. Intersubjectivity is the sharing of subjective states by two or more individuals - they agree on a given set of meanings or a definition of the situation (Leseman, Rollenberg, & Rispen, 2001; Zlatev, Racine, Sinh, & Itkonen, 2008).

The Russian psychologist Vygotsky (1978) was famous for investigating cognitive co-construction between more able and a less able participants. He found it was important that the level of challenge was appropriate for the tutee – within their “zone of proximal development” (the level where the tutee could not perform unaided but could perform successfully with some help from a more knowledgeable other).

From Conflict and Co-construction there are five different options, all of which interact with each other and have an influence on the linear steps which follow them (see Figure 1) (Gagne, Wager, Golas & Keller, 2004). We will take these five variables in the order in which they appear.

### **Engagement**

Engagement describes intensity of arousal and involvement with the task. It encompasses curiosity, interest, attention, responsiveness, investigation, discovery, anticipation, persistence and initiation (Engagement for Learning, 2011). An immediate benefit of intergenerational tutoring to both members of the pair is that both are receiving more than usual individual attention. This might mean that the student gets more attention than in a regular class, while the older person gets more attention than in the course of usual everyday events, and in both cases this attention is closely focused on the mental activity of the other person, i.e. it avoids other distractions, is highly engaging, and requires new thinking. Nonetheless, more individual attention would rapidly lose its appeal if it had no active content. Any activity which is of interest to the pair will result in a focus of attention on the joint interactive task (and pairs should not try to engage with activities which are

only of interest to one member of the pair). There will be concentration and arousal gains. Of course, if one member of the pair becomes too much like a teacher (didactic – maybe even bossy), the concentration and response of the tutee may suffer. So, some form of equal sharing of the interactivity is needed, which can be helped if the tutor is not an “expert” in the field (or is pretending not to be).

A great advantage is the immediacy of response from one to another (Witt, Wheelless, & Allen, 2004) – especially high in face-to-face contact, albeit rather slower in messaging at different times (asynchronously) via the internet. This keeps the interaction speeding along at a good pace, even if there are diversions where the members of the pair do not agree and a compromise has to be negotiated. As the relationship develops, pairs are able to make goals and plans for the future about issues they will explore in future meetings (Rutherford, 2012). Of course, there will be lots of talking, so any hope that intergenerational learning will be quiet is unrealistic – there will be noise – but of course it will be productive noise and it is unlikely to disturb the pairs.

### **Individualization**

Another advantage is Individualization – content, pedagogy and pace of learning are based upon the unique abilities and interest of each learner – and perhaps their culture, socioeconomic status, language, gender, motivation, ability/disability, personal interests and so on (also known as Differentiation). Each member of the pair will increasingly respond to their partner in a way which is tailored to the needs of that partner (Johnson & Johnson, 1975). As time goes by the tutor will modify the difficulty and other characteristics of the material under discussion so that the individual tutee can readily understand it – although this will take some time to develop (Yeh, 2010; Joseph, Thomas, Simonette, & Ramsook, 2013). Of course, the partner should not be “dumbing down” the issue too much so it is too easy – a certain amount of challenge is always needed.

There will be many opportunities to question – from both members of the pair. A question is any sentence which has an interrogative form or function. Tutor questions act as instructional stimuli suggesting elements to be learned. Young children are often very good at asking questions, especially if they are encouraged – although sometimes their questions are too big to find an answer (King, 1992a). Equally, the tutor can question strategically – not offering just a closed question or one where the answer is self-evident, but asking a question which leads the child on from where their thinking has got to. Learning skillful questioning is highly desirable in tutors – and of course

tutees will learn it and use it with their eventual tutees. A good question promotes a high quality of answer – not just “yes” or “no”, but an elaborated statement which indicates the reasoning behind the child’s opinion. Of course, the opinion may be quite wrong, and the partner then has to skillfully question to get the child to see alternative perspectives.

### **Communication**

Much of intergenerational learning is about communication - the act or process of using words, sounds, signs, or behaviors to express or exchange information or to express your ideas, thoughts, feelings, etc., to someone else. Tutoring pairs will communicate in the common vocabulary of everyday people, not in the rather technical and complex language teachers sometimes use. This enables children to be much more talkative than they might otherwise be. Vygotsky (1978) said that you only really know something when you have the language to express it to another person, and intergenerational tutoring gives children the chance to develop the language to express their thoughts – including their deepest thoughts, which might quite surprise their partner. Both parties also need to carefully listen to the other as they attempt to explain their point of view, then ask questions which lead to further elaborations – or maybe a realization that the first view was wrong or incomplete (Witt, 2016).

Of course, there needs to be care that a given explanation is not too abstract for the child to grasp (Lombrozo, 2006). Exemplification can be very helpful here – a concrete example often works wonders (Oliveira & Brown, 2016). Children often make their initial explanations too long-winded and partners can help them by encouraging them to clarify, simplify or summarize. Summarizing teaches tutees how to discern the most important ideas in a text, how to ignore irrelevant information, how to integrate the central ideas in a meaningful way and improves their memory (King, 1992b).

Some children will be reluctant to offer half-formed thoughts, and the partner will encourage them to say something, because everything can be revised and improved later once you have something to start with. Similarly, the idea of rehearsing an idea should be shared (not just repeating it but adapting it at each stage) so that with continuous improvement it will eventually be worth sharing with other pairs or the whole group (Horinouchi, Wakita, Anse, & Tabe, 2007). As an idea develops pairs can speculate freely or hypothesize, allowing their imagination to run riot, then later bring their

ideas back and rationalize or summarize them for wider consumption. Needless to say, this process presents many learning opportunities for the tutor as well.

### **Social**

Every learning interaction requires the use of social skills by both members of the pair (Kostelnik, Soderman, Whiren & Rupiper, 2017). Social skills are the skills we use to communicate our messages, thoughts and feelings and interact with each other, both verbally and non-verbally, through gestures, body language and our personal appearance. At a more advanced level such skills include empathy and self-control. If they do not already know each other, at first meeting both tutor and tutee might need some way of introducing themselves and beginning to talk about what might be learned first. If need be, they can be given some training and a list of tips about this. The notional tutor will need to learn not to be bossy and not to talk too much of the time – in other words, not to be too much like a professional teacher. The tutee will need not to be over-powered by their partner and be prepared to expose their initially rather faulty thinking, as well as accepting both criticism and praise without becoming upset or over-excited. Both members of the pair will need to show some social tolerance of the peculiarities of their partner (Pittinsky, 2012). Of course, social skills developed with one partner will only partly transfer to interaction with a new partner.

### **Emotional**

Emotion has a particularly strong influence on selectivity of attention, as well as motivating action and behavior. Negative emotions such as anxiety, depression, anger and frustration can be the cause or effect of problems with learning and lead to a maladaptive and self-defeating pattern of behavior which prevents learning (Tyng, Amin, Saad, & Malik, 2017). At first meeting a degree of anxiety is normal. Both partners are entering a new situation, which is unknown. As the pair get to know each other better and learn to trust each other (bearing in mind the tutor is not the same kind of authority figure as a teacher), their anxiety about each other should reduce and their self-esteem (or self-confidence) should grow (Beauchemin, Hutchins, & Patterson, 2008). Of course, for some pairs there might be a longer period of social as well as cognitive conflict before things settle down.

In the longer run, other emotional factors come into play. The tutee might be anxious about the material to be learned, and feel they are not capable of learning it (Darke, 2002). Here it will be important that the tutor is positive and encouraging and reassures the tutee that they felt the same



way before they learned it, but now they are quite happy and confident with it. In other words, the tutor should be encouraging and demonstrate a model of coping and confidence. As the tutee becomes more confident, they will feel more able to disclose their thinking, which may well be faulty, and this will enable diagnosis and correction by their partner.

As time goes on both members of the pair should develop more certainty about what is being learned, and with that will come higher desire and confidence (motivation) to learn the next thing (Heckhausen & Heckhausen, 2018). Added to this is the fact that the partners come to be accountable to each other – because they have a better and better relationship, they do not want to let their partner down. This gives them a stronger sense of responsibility for their learning. This responsibility leads to a stronger sense of ownership of their own learning – it is truly theirs rather than being inflicted upon them by an outside organization.

From the five variables which all have equal weight, we move to a number of variables which are in a linear sequence (see Figure 1).

### **Prompting and Error Management**

Once tutees have the confidence to express their thinking out loud, it will become evident that they are making errors, or perhaps leaving gaps in their line of reasoning. How should tutors intervene? Particularly when one partner is more able in the area of interest than the other, they are likely to be involved in “prompting” - saying something to encourage or remind someone to do or say something, without telling them what they have to say (Sitzmann & Ely, 2010). Prompting is definitely not just telling them the “right answer” - if tutors do this, they are paying too much attention to correctness and not enough to the development of the thought processes required for the tutee to arrive at the right answer by themselves. Of course, the latter takes longer, but the tutee learns the thinking involved and can then use these skills to solve other similar problems. “Scaffolding” is another word sometimes used in this context (Gibbons, 2014). When grasping the concept is just too difficult for the tutee, the tutor provides some steps which lead the tutee in the right direction – without giving the answer. Like prompting, this is a skill that tutors have to develop over time – another of the benefits for the tutor.

Error management is directed at dealing effectively with errors after they have occurred, with the goal of minimizing negative and maximizing positive error consequences. One of the major issues is

the question of how errors should be corrected (Frese & Keith, 2015). Even when the tutee's error seems glaring to the tutor, the tutee may be very emotionally attached to it, so it is no use just saying that is "wrong". The first issue is identifying the error – sometimes the tutor will miss errors without noticing or at first may choose to concentrate on major errors and overlook minor errors. When the tutor spots an error, they should not immediately go into a mini-lecture about it. Instead they should wait till the end of the sentence then simply point to or say what the error was, and see how the tutee responds - they may be able to self-correct, which is a much more productive way of progressing (Ramdass & Zimmerman, 2008).

The second issue is diagnosing the kind of error – what does it tell us about the tutee's faulty thinking and what might we need to address to resolve that faulty thinking? (Cha, Kim, Park, Yoon, Jung, & Lee, 2006). It follows from what has been said above that errors need to be discussed between the partners, so they can arrive at a newly constructed form of truth before going on. If the tutee still cannot grasp the concept, the tutor may have to resort to giving a more concrete example or modelling or demonstrating how that bit of the problem can be solved. Again, skill development for the tutor. One of the great advantages of intergenerational learning is that errors can be corrected almost immediately. In a classroom, children might have to wait much longer, unless they were using some kind of computer application which offered corrective feedback.

Generally, errors should be corrected in a positive way through discussion, prompting, scaffolding and if necessary, modelling – demonstrating the relevant behavior (Haston, 2007). Tutors should also remember that once the error has been identified, they should pause or allow some "wait time" to allow the tutee to try to self-correct – (Forbes, Poparad, & McBride, 2004). With a bit more thinking they might manage it on their own, and that would make for better learning than too much interference by the tutor. However, particularly with very difficult concepts, the tutor will need to monitor and control the flow of information so that the tutee is never presented with too large a chunk of material which they cannot assimilate. The concept of zone of proximal development is again highly relevant. There is more skill development for the tutor here.

### **Practice and Fluency**

Intergenerational tutoring might occur more frequently than interaction between the teacher and each single pupil in the classroom. So, there are more opportunities to repeat similar tasks until the principles are really well understood (Ausubel, 1965). This also enables and facilitates a greater

volume of engaged and successful practice - the actual application or use of an idea, belief, or method, as opposed to theories relating to it. Of course, the practice needs to be correct practice, or the tutee will overlearn mistakes! (Allington, 2008).

This more frequent practice leads to greater consolidation and fluency in understanding and performance (Nichols, Rupley, & Rasinski, 2008). Someone is said to be fluent if their use of the language appears fluid, smooth, natural, coherent, and easy. Fluency is characterized by the language user's automaticity, their speed and coherency of language use, and the length and rate of their speech output. The flow is smoother because some of the learning has become automatic – it does not have to be consciously remembered but is put into operation without really thinking about it. The more learning is at the automatic level, the greater will be the retention of that learning – it is truly embedded in the tutee's consciousness. Much of this automaticity is implicit, i.e. the tutee is not really consciously aware of it (Fawcett & Nicolson, 1992).

### **Feedback and Reinforcement**

Another great benefit of intergenerational tutoring is feedback – information about their performance given to learners to praise positive aspects and point out areas needing improvement – which of course then needs to be acted upon. Feedback can also help develop the learner's capacity to monitor, evaluate and regulate their own learning (Nicol, 2010). Feedback from intergenerational tutors is again greater in quantity and more immediate and frequent than with classroom learning (Gielen, Peeters, Dochy, Onghena, & Struyven, 2010). Tutees can be frequently encouraged as they struggle with difficult concepts. As they say things that are partially right, the tutor can start by pointing out what they have said which is good and useful, then move on to point out where their reasoning is less good (always positive before negative) (Hattie & Clarke, 2018).

Positive reinforcement is the action or process of encouraging or strengthening a pattern of behavior by associating some positive event with the behavior, so it is more likely to occur again in the future (we assume tutors will not use negative reinforcement) (Wheatley, West, Charlton, Sanders, Smith, & Taylor, 2009). Usually positive reinforcement will be praise, but this should clearly specify exactly what is being praised. The role of praise is an interesting issue. One might say that all children should be praised as much as possible. However, even some young children are not happy with an excess of praise, perhaps because they feel they have to learn trust in the person who is praising before they can accept it (Dweck, 2007). Where young people are working with older people

there needs to be much more care with praise, because it may not be appropriate in that context at that time. However, it can be helpful if tutees can be encouraged to give praise to tutors also, since the feedback process should be two-way.

Where praise is given a variety of forms of verbal praise are need, not just a routine and repetitive “good”. In addition, the praise needs to be accompanied by non-verbal signals, so that the tutee is convinced that the tutor actually means it. Giving a variety of both verbal praise and non-verbal praise is a skill that has to be developed, and this extends the tutor’s repertoire. Beyond the partnership there may be explicit reinforcement for the pair in the form of social acknowledgement and status, official accreditation, or even more tangible reward. However, tangible reward which is not necessary is not likely to act as a reinforcer.

Some of this feedback and reinforcement will be implicit (the partners not consciously aware of it), but some will be explicit (the partners are consciously aware of it). However, indiscriminate reinforcement which is not linked directly with good performance or is predominantly for effort rather than performance will not be nearly as effective in promoting good learning (Krohn & O'Connor, 2005).

### **Generalization**

Generalization accepts that humans recognize the similarities in knowledge acquired in one circumstance and that this enables transfer of that knowledge into new and somewhat different situations. Once the tutee has *really* learned a concept, they can begin to apply it to other similar problems. An obvious example would be in mathematics, where once a principle is grasped, it can be applied to many similar problems. Intergenerational tutoring can lead to generalization from the specific example in which a concept is learned, extending the ability to apply that concept and its developmental variants to an ever-widening range of alternative and varied contexts (Polit & Beck, 2010). In the first instance much of this would be supported by the tutor, but as time goes on it should become increasingly independent – the tutee managing this without much scaffolding. Likewise, in the first instance it would be implicit, but as time goes on and the tutee is made aware of what is happening, it should become increasingly explicit.

### **Metacognition**

Metacognition is awareness and understanding of one's own thought processes – thinking about thinking - which leads to the ability to control and direct those thought processes (see self-regulation in the next section). In a learning situation, it means becoming sharply aware of how you are thinking to learn, and consequently how that thinking can be made more efficient (Hacker, Dunlosky & Graesser, 1998). Tutors will usually become more metacognitively aware first, then the tutee may follow. Metacognition is always explicit – it is always fully in consciousness and is intentional. It can be summarized in the catch phrase: I know I know; I know I know how; I know I know when and if.

### **Self-monitoring and Self-regulation**

As learners become more sophisticated, they become more metacognitively aware and through this more able to self-monitor their own thinking. Self-monitoring can be defined as the process of attending to one's own actions and noting or recording the presence or absence of a specified relevant behavior (Joseph & Eveleigh, 2011; Cook, 2014). This of course requires multi-tasking – not only thinking, but also thinking about thinking. So, it is not easy. Beyond this, the learner should become more able to self-regulate or control their thinking about similar and then new topics in different contexts, so that many false paths are avoided and the logical consistency of their reasoning improves (Zimmerman, 1990; Vohs & Baumeister, 2017). Self-regulated learning refers to one's ability to understand and control one's learning environment and includes goal setting, self-instruction, and self-reinforcement. This self-regulation can be both implicit and explicit.

### **Confidence and Self-attribution**

As the learner develops metacognition and self-regulation, an emotional change occurs. Because the learner is so much more aware of their thinking and in control of it, they feel increasingly confident about their mastery of this area of inquiry. Confidence means believing in your own ability, skills and experience and your ability to succeed. Of course, some children are over-confident, but many are under-confident. As tutors become increasingly competent, they also become increasingly confident. Confidence is also known as self-efficacy (Zimmerman, 2000).

Furthermore, the children attribute this improvement to their own ability, rather than to the support of the tutor or any even more distant external factors. Self-attribution bias refers to an individual's tendency to attribute successes to their own personal skills and any failures to factors beyond their control (Booth & Gerard, 2011). Tutors attribute success to themselves as well as the efforts of the

tutee. This self-attribution can be summarized in the catch phrase: I want to know; I want to know how, when, if; I believe I can know how, when, if.

### **Level of Learning**

Surface learners have an unreflective approach – there is a focus on memorising and reproducing the learning material, knowledge is fragmented, facts are not elaborated upon and there is no real interaction with or connection between with ideas. The underlying argument is not comprehended and the learning task is treated as a monotonous chore. The learning is driven by external incentives or punishments, like an impending test - i.e. is extrinsic. The aim is to recite and regurgitate the material inactively, forgetting it as soon as the external accountability requirement has passed (Lindblom-Ylänne, Parpala, & Postareff, 2018).

By contrast, deep learners relate the topic and its ideas to past knowledge and experiences. They think critically about newly learned material and tie it in with information from other sources. They recognize a structure in the content. Their motivation comes from within and is intrinsic - they want to learn. They aim to understand the meaning behind the material and can create new arguments based on the new information. They retain much of what they learn (Entwistle, 1989).

Obviously, the aim in IL is to enhance deep learning and reduce surface learning. However, all learners may need to engage at the level of surface learning before they can develop into deep learners, in relation to any particular topic of inquiry. The role of the tutor in encouraging deep learning is cognitively challenging for them, and enhances their own level of thinking.

### **Type of Learning**

Learners need to possess and be aware of three kinds of knowledge: declarative, procedural, and conditional. Declarative knowledge is factual information that one knows; it can be declared - spoken or written. Procedural knowledge is knowledge of how to do something, formed by doing, of how to perform the steps in a process; for example, knowing how to pronounce a multi-syllabic word. Conditional knowledge is about when to use a procedure, skill, or strategy and when not to use it - why a procedure works and under what conditions; and why one procedure is better than another (Fabio & Antonietti, 2012). For example, learners need to know under what conditions to draw a diagram to more effectively illustrate points that they are making. In intergenerational tutoring all

these kinds of learning are needed (Ormrod, 2015). However, the usual tendency is to over-emphasize declarative knowledge at the expense of the two other kinds, so this needs to be struggled against.

From here this element feeds back into the starting elements (see Figure 1) as the pair move on to new topics – forming a continuous iterative process and a virtuous circle. The model applies similarly to fixed or reciprocal roles, variations in timing and location, and variations in the characteristics of helpers and the characteristics of helped – irrespective of the objectives set for the pair.

### **Conclusion**

Different individuals within the same learning partnership, and different partner relationships, are likely to follow somewhat different pathways to the same learning goals. If one characteristic of the helpers and helped is that they are developmentally young or slow learners themselves, then few of the channels in the model will develop automatically, inter-subjectivity is likely to be primitive, and more training and closer monitoring, coaching and management will be necessary. Although all channels in the model might be eventually utilized to some extent by both members of a pair, their different learning styles might lead them to use some channels more than others in ways unique to themselves. This highlights the individualization which is inherent in intergenerational tutoring, but takes the notion much further than the mere individualization of learning tasks or surface learning behaviors.

The point of the model is to enable learners (whether helpers or helped) to see what channels they are currently not using enough or not using at all – and encourage them to use additional channels as suits their personal learning styles to maximize the effectiveness of their learning. For professionals, this theoretical model is something of a mixed blessing. Just when they thought they knew how intergenerational tutoring should work, along comes a model that makes everything seem rather more complicated. Of course, professionals should be encouraged to think of the model in terms of a step-wise progression for each pair. Having identified which elements any tutoring pair are not doing; the professional selects the one most obviously missing and desirable element and advises the pair to engage in it. Later, she/he selects the next most obviously missing element, and so on... So, professionals are never actually faced with trying at one moment to get the tutoring pair to engage in all the elements, which is likely to be too complex and counter-productive.

In that respect a useful task for professionals is to explain the model to users in simple terms, discuss how it applies to present learning and how future learning might take advantage of additional opportunities. In this respect it may become a feature in initial training in peer tutoring – or perhaps in a second phase of training after some initial tutoring experience. It can provide a framework for helping the learning partners themselves to reflect upon their own process – a tool for self-assessment or peer assessment which might further enhance metacognition (Topping, 2018). The model can also be used profitably as a template (or observational checklist) for monitoring intergenerational interactions as they are happening - a tool to structure monitoring and diagnostic fault-finding.

For future research, the template provided by the model should prove useful for the design of new intergenerational learning methods. Further research might seek to explore the validity of the model empirically, or of the relative effectiveness of different elements of the model with different learners. Research into the impact of the use of the model in monitoring implementation integrity (quality of delivery of an intervention) also would be worthwhile.



## References

- Anderson, J. R. (2005). *Cognitive psychology and its implications*. Sixth edition. New York, NY: Worth.
- Allington, R. I. (2008). *What really matters in fluency: Research-based practices across the curriculum*. New York & London: Pearson.
- Ausubel, D. P. (1965). The role of frequency in learning and retention: A cognitive structure interpretation. *The Journal of General Psychology*, 72(2), 359-368, DOI: 10.1080/00221309.1965.9710705
- Beauchemin, J., Hutchins, T. L., & Patterson, F. (2008). Mindfulness meditation may lessen anxiety, promote social skills, and improve academic performance among adolescents with learning disabilities. *Complementary Health Practice Review*, 13(1), 34-45. DOI: 10.1177/1533210107311624
- Booth, M. Z., & Gerard, J. M. (2011). Self-esteem and academic achievement: A comparative study of adolescent students in England and the United States. *Compare*, 41(5), 629-648.
- Cha H. J., Kim Y. S., Park S. H., Yoon T. B., Jung Y. M., & Lee J. H. (2006). Learning styles diagnosis based on user interface behaviors for the customization of learning interfaces in an intelligent tutoring system. In: Ikeda M., Ashley K. D., & Chan T. W. (Eds.) Intelligent tutoring systems. ITS 2006. *Lecture Notes in Computer Science*, 4053, 513-524. Berlin: Springer.
- Cook, K. B. (2014). *Self-monitoring strategies for improving classroom engagement of secondary students*. Georgia Association for Positive Behavior Support Conference, 65. <https://digitalcommons.georgiasouthern.edu/gapbs/2014/2014/65>
- Darke, S. (1987). Anxiety and working memory capacity. *Cognition and Emotion*, 2(2), 145-154.
- Dweck, C. S. (2007). The perils and promises of praise. *Educational Leadership*, 65(2), 34-39.
- Engagement for Learning (2011). *The engagement for learning framework guide*. London: Department for Education.
- Entwistle, N. J. (1989). *Styles of learning and teaching: An integrated outline of educational psychology for students, teachers and lecturers*. London: David Fulton.
- Evertson, C. M., & Weinstein, C. S. (2011). *Handbook of classroom management: Research, practice and contemporary issues*. New York & London: Routledge.
- Fabio, R. A., & Antonietti, A. (2012). Effects of hypermedia instruction on declarative, conditional and procedural knowledge in ADHD students. *Research in Developmental Disabilities*, 33, 2028-2039. <http://dx.doi.org/10.1016/j.ridd.2012.04.018>
- Fawcett, A. J., & Nicolson, R. I. (1992). Automatisatation deficits in balance for dyslexic children. *Perceptual and Motor Skills*, 75(2), 507-529. <https://doi.org/10.2466/pms.1992.75.2.507>

- Forbes, S., Poparad, M. A., & McBride, M. (2004). To err is human; To self-correct is to learn. *The Reading Teacher*, 57(6), 566-572.
- Frese, M., & Keith, N. (2015). Action errors, error management, and learning in organizations. *Annual Review of Psychology*, 66(1), 661-687.
- Gadsden, V. L., & Hall, M. (1996). *Intergenerational learning: A review of the literature*. ERIC Document Reproduction Service Number: ED454974.
- Gagne, R. M., Wager, W. W., Golas, K. C., & Keller, J. M. (2004). *Principles of instructional design*. Fifth edition. Belmont, CA: Wadsworth.
- Gibbons, P. (2014). *Scaffolding language, scaffolding learning, Second Edition: Teaching English language learners in the mainstream classroom*. Portsmouth, NH: Heinemann.
- Gielen, S., Peeters, E., Dochy, F., Onghena, P., & Struyven, K. (2010). Improving the effectiveness of peer feedback for learning. *Learning and Instruction*, 20(4) 304-315.  
<https://doi.org/10.1016/j.learninstruc.2009.08.007>
- Granott, N. (1993). Patterns of interaction in the co-construction of knowledge: Separate minds, joint effort and weird creatures. In Wozniak, R. H., & Fischer, K. W. (Eds.), *Development in context: Acting and thinking in specific environments*. New York & London: Psychology Press.
- Hacker, D. J., Dunlosky, J., & Graesser, A. C. (1998). *Metacognition in educational theory and practice*. New York & London: Routledge.
- Haston, W. (2007). Teacher modeling as an effective teaching strategy. *Music Educators Journal*, 93(4), 26-30.
- Hattie, J., & Clarke, S. (2018). *Visible learning: Feedback*. New York & London: Routledge.
- Heckhausen, J., & Heckhausen, H. (2018) (Eds.). *Motivation and action. Third edition*. New York: Springer.
- Horinouchi T., Wakita S., Anse M., & Tabe T. (2007). A study of an effective rehearsal method in e-learning. In: Smith M. J., & Salvendy G. (Eds.), *Human interface and the management of information*. Lecture Notes in Computer Science, 4558, 328-336. Berlin: Springer.  
[https://doi.org/10.1007/978-3-540-73354-6\\_36](https://doi.org/10.1007/978-3-540-73354-6_36).
- Johnson, D. W. & Johnson, R. T. (1975). *Learning together and alone: Cooperation, competition, and individualization*. Upper Saddle River, NJ: Prentice Hall.
- Joseph, L. M., & Eveleigh, E. L. (2011). A review of the effects of self-monitoring on reading performance of students with disabilities. *Journal of Special Education*, 45(1), 43-53.  
<https://doi.org/10.1177/0022466909349145>

- Joseph, S., Thomas, M., Simonette, G., & Ramsook, L. (2013). The impact of differentiated instruction in a teacher education setting: Successes and challenges. *International Journal of Higher Education*, 2(3), 28-40. doi:10.5430/ijhe.v2n3p28.
- King, A. (1992a). Facilitating elaborative learning through guided student-generated questioning. *Educational Psychologist*, 27(1), 111-126. [https://doi.org/10.1207/s15326985ep2701\\_8](https://doi.org/10.1207/s15326985ep2701_8)
- King, A. (1992b). Comparison of self-questioning, summarizing, and notetaking-review as strategies for learning from lectures. *American Educational Research Journal*, 29(2), 303-323.
- Kostelnik, M., Soderman, A., Whiren, A., & Rupiper, M. L. (2017). *Guiding children's social development and learning: Theory and skills*. Ninth edition. Boston: Cengage Learning.
- Krohn, G. A., & O'Connor, C. M. (2005). Student effort and performance over the semester. *The Journal of Economic Education*, 36(1), 3-28. DOI: 10.3200/JECE.36.1.3-28
- Leseman, P. P.M., Rollenberg, L., & Rispens, J. (2001). Playing and working in kindergarten: Cognitive co-construction in two educational situations. *Early Childhood Research Quarterly*, 16(3), 363-384.
- Lindblom-Ylänne, S., Parpala, A., & Postareff, L. (2018). What constitutes the surface approach to learning in the light of new empirical evidence? *Studies in Higher Education*, DOI: 10.1080/03075079.2018.1482267
- Lombrozo, T. (2006). The structure and function of explanations. *Trends in Cognitive Sciences*, 10(10), 464-470.
- Nicol, D. (2010). From monologue to dialogue: Improving written feedback processes in mass higher education. *Assessment & Evaluation in Higher Education*, 35(5), 501–517. DOI: 10.1080/02602931003786559
- Nichols, W. D., Rupley, W. H., & Rasinski, T. (2008). Fluency in learning to read for meaning: Going beyond repeated readings, *Literacy Research and Instruction*, 48(1), 1-13, DOI: 10.1080/19388070802161906
- Oliveira, A. W., & Brown, A. O. (2016). Exemplification in science instruction: Teaching and learning through examples. *Journal of Research in Science Teaching*, 53(5), 737-767.
- Ormrod, J. (2015). *Human learning*. Seventh edition. New York & London: Pearson.
- Peacock, E. W., & Talley, W. M. (1984). Intergenerational contact: A way to counteract ageism. *Educational Gerontology*, 10(1-2), 13-24. <http://dx.doi.org/10.1080/0380127840100102>.
- Pittinsky, T. L. (2012). Allophilia: Moving beyond tolerance in the classroom. *Childhood Education*, 85(4), 212-215. <https://doi.org/10.1080/00094056.2009.10523083>
- Polit, D. F., & Beck, C. T. (2010). Generalization in quantitative and qualitative research: Myths and strategies. *International Journal of Nursing Studies*, 47(11), 1451-1458.

- Ramdass, D., & Zimmerman, B. J. (2008). Effects of selfcorrection strategy training on middle school students' self-efficacy, selfevaluation, and mathematics division learning. *Journal of Advanced Academics, 20*(1), 18-41.
- Rutherford, P. (2012). *Active learning and engagement strategies: Teaching and learning in the 21st century*. Alexandria, VA: Just ASK Publications.
- Sitzmann, T., & Ely, K. (2010). Sometimes you need a reminder: The effects of prompting self-regulation on regulatory processes, learning, and attrition. *Journal of Applied Psychology, 95*(1), 132-144. <http://dx.doi.org/10.1037/a0018080>
- Topping, K. J. (2018). *Using peer assessment to inspire reflection and learning*. Student assessment for educators series (Ed. J. H. MacMillan). New York & London: Routledge. ISBN: 978-0-8153-6765-9 (pbk). [www.routledge.com/9780815367659](http://www.routledge.com/9780815367659)
- Tyng, C. M., Amin, H. U., Saad, M., & Malik, A. S. (2017). The influences of emotion on learning and memory. *Frontiers in Psychology, 8*, 1454. DOI:10.3389/fpsyg.2017.01454
- Villas-Boas S., Oliveira A. L., & Ramos N. (2015). Gender and intergenerational programs. In: Ostrouch-Kamińska J., & Vieira C.C. (Eds.), *Private worlds: Research on the education and learning of adults*. Rotterdam: SensePublishers.
- Vohs, K. D., & Baumeister, R. F. (2017) (Eds.). *Handbook of self-regulation, Third edition: research, theory, and applications*. New York: The Guilford Press.
- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes* (edited by M. Cole, V. John-Steiner, S. Scribner, & E. Souberman). Cambridge, MA: MIT Press.
- Wheatley, R. K., West, R. P., Charlton, C. T., Sanders, R. B., Smith, T. G., & Taylor, M. J. (2009). Improving behavior through differential reinforcement: A praise note system for elementary school students. *Education and Treatment of Children, 32*(4), 551-571.
- Witt, P. L., Wheelless, L. R., & Allen, M. (2004). A meta-analytic review of the relationship between teacher immediacy and student learning. *Communication Monographs, 71*(2), 184-207. DOI: 10.1080/036452042000228054.
- Witt, P. (2016). *Communication and learning*. Berlin: De Gruyter Mouton.
- Yeh, S. (2010). Understanding and addressing the achievement gap through individualized instruction and formative assessment. *Assessment in Education: Principles, Policy & Practice, 17*(2), 169-182.
- Young, T. L., & Janke, M. C. (2013). Perceived benefits and concerns of older adults in a community intergenerational program: Does race matter? *Activities, Adaptation & Aging, 37*(2), 121-140, DOI: 10.1080/01924788.2013.784852.

- Zimmerman, B. J. (1990). Self-regulated learning and academic achievement: An overview. *Educational Psychologist, 25*(1), 3-17, DOI: 10.1207/ s15326985ep2501\_2
- Zimmerman, B. J. (2000). Self-efficacy: An essential motive to learn. *Contemporary Educational Psychology, 25*, 82–91. DOI:10.1006/ceps.1999.1016
- Zlatev, J., Racine, T. P., Sinh, C., & Itkonen, E. (Eds.) (2008). *The shared mind: Perspectives of intersubjectivity*, pp. 1-14. Amsterdam: Benjamins.

Figure 1: Theoretical Model of Intergenerational Tutoring

