

**Title:** Embedding knowledge into Non-Medical Prescribing education

**Abstract:**

This article will focus on the Non-Medical Prescribing (NMP) module for community prescribers, and is written in a nurse education context. The module which prepares a variety of clinical professionals who are non-medical, but are required to be health care professionals (HCPs), mainly attracts Registered Nurses (RNs) from community settings (such as health visiting, school nursing, district nursing and practice nursing) is provided within higher education institution's (HEI), as part of a specialist programmes or a continued workforce development module.

The paper discusses changes that can enhance student learning within the NMP module and facilitate wider success and confidence within community nurse prescribers. The move away from NMC standards for prescribing to a single competency framework by the Royal Pharmaceutical Society (RPS) drives academics to revisit teaching strategies and consider an approach that offers wider student participation in learning. The use of Technology enhanced learning (TEL) in HEI's is part of national recommendations to improve the student experience and increase success.

**Key words:**

▪ Non-Medical Prescribing ▪ Technology enhanced learning ▪ continued professional development ▪ student participation ▪ confidence to prescribe

**Introduction:**

This article discusses changes that can enhance student learning within a Non-Medical Prescribing (NMP) module for community prescribers, module and aims to facilitate wider success and confidence for prescribers within community teams. The transition away from the widely used Nursing and Midwifery Council (NMC) standards for prescribing, to a single competency framework by the Royal Pharmaceutical Society (RPS), drives academics to revisit teaching strategies and consider an approach that offers wider student participation in learning. The use of Technology enhanced learning (TEL) in HEI's is part of national recommendations to improve the student experience and increase success.

**Background:**

Nurse prescribing is an area of professional development that has been a priority to specialist practitioners since introduced within the Crown Report in 1992 (DH 1998). Nurse prescribing within community settings is seen to shape the quality and continuity of care that can be provided in a place and a time that is best for the patient (HEE, 2014, Willis 2014).

Nurse prescribing embeds holistic care and has been recognised as a measure to reduce General Practitioner (GP) and hospital attendance rates in concordance with cost effective care (Kroezen *et al.*, 2014).

Nurse prescribing programmes are led by approved higher education institutions with NMC accreditation. A change from the framework that NMC Nurse prescribing standards bring, to descriptors for guidance of use by any prescriber, as determined by Royal Pharmaceutical Society (RPS) (Royal Pharmaceutical society, 2016), came into effect in January 2019. The RPS

recommend that the new framework should be conceptualised to reflect the various areas of practice and levels of expertise that prescribers practice within.

### **Developing Non-Medical Prescribing (NMP) modules in higher education (HE).**

NMP modules for community nurse prescribers consists of two modules that are typically taught in conjunction with each other. The V100 (preparation for community non medical prescribers) module sits within specialist community practice programmes and the V150 (preparation for non medical community prescribers) brings nurses from practice through a continued workforce development route (NMC 2019). The two modules are delivered in conjunction with each other. There is a three-part assessment process, for students to demonstrate their learning and evidence proficiency of NMP standards.

Traditionally these modules have utilised instructionist methods to teaching, with lectures as a formal discourse in the delivery of knowledge. Students are expected to internalise this information and synthesise with prescribing skills from practice, utilising problem-based learning techniques with their practice supervisors to support their prescribing development.

Student success at first attempt summative assessment can be less successful than other modules with a significant proportion requiring second attempt submissions to meet NMC standards and module outcomes. Student satisfaction from evaluation and feedback processes reflects that students find this approach to teaching restricts learning when delivered throughout a module. The changes required for inclusion of RPS frameworks, will accommodate curriculum development of nurse prescribing programmes and facilitate flexible pedagogy that can engage students through blended learning approaches. Blended learning is

the formation of teaching strategies that incorporate a range of approaches, such as use of formal lectures and seminars with e learning and multimedia (TEL) systems into a programme, aimed at providing a comprehension varied approach to teaching and learning (Porter *et al.*, 2014; Cober *et al.*, 2015).

### **Incorporating blended learning.**

Blended learning approaches are cited by recent academic researchers (Yang, 2012; Porter *et al.*, 2014; Ho and Kember, 2018) to increase student satisfaction, achievement and facilitate effective learning pathways. Blended learning has a recognised positive effect on institutional resources increasing student satisfaction and reducing teaching costs. Professional bodies for higher education stress the importance of blended learning, this can maximise the use of TEL within the modules provided within universities. TEL reaches to an ever increasing, technologically enabled and diverse student population (Gordon, 2014). Providers for higher education (Office for students, 2018) conclude that for institutions within the United Kingdom (UK) to continue to provide world class education, effective use of TEL is vital. A study by Porter *et al.* (2014), commented on the rapid growth of TEL in higher education, highlighting that blended learning is now considered as being the accepted 'norm' in curriculum design.

TEL facilitates students to learn at their own pace using ontological perspectives best suited to individual needs (Scamell and Hanley, 2018). TEL which is designed to provide opportunity for feedback, assists students' capacity to reflect on their learning. Reflection is an essential skill that stimulates deep lifelong learning. Professional bodies such as the NMC, demand that graduates are skilled problem solvers who are able reflect, challenge thinking and take their

learning forward into practice. Students ability to engage within TEL can embed self-direction and enhance the necessities for lifelong learning (Gourlay, 2015).

It is often acknowledged within research into TEL (Yang, 2012; McKenney *et al.*, 2015) that the inclusion of TEL can present challenges to some students. Whereas we have moved into an increasingly digital world, not all post registration students are technically skilled (Petty, 2013). Within post registration students on NMP modules, there are many mature students who may not have been trained in the technology of modern society (Parson, Childs and Elzie, 2018). This will require support from teaching staff and student services to help ensure that these students are able to access TEL resources and gain expertise in the learning tools to support their education.

## **Literature Review**

Kroezen, et al (2014) reported findings from a Dutch study of nurse prescribers, only 12% of registered nurses whom had gained NMP qualification felt skilled to prescribe. Many citing that the training was insufficient to give them confidence in their prescribing decisions. This was a longitudinal study which occurred over a four-year period, with an aim to identify factors that were preventing qualified NMP from prescribing in practice. The findings represented that nurses did not feel confident in their knowledge of NMP to continue this into clinical settings. This study expresses that training within NMP education needed to offer combined approaches that would facilitate decision making and confidence within nurse prescribers. A UK based survey across primary care trusts in the UK (Hall and Cantrill, 2006), reflected the experiences of UK nurses as similar to those expressed in the Dutch study. Identifying that 16% of qualified

nurse prescribers do not continue with this skill in practice. Within these studies, confidence in skill acquisition is indicated as a main reason that nurses felt influenced their decisions in practice. Learning to prescribe has been cited as being one of the most challenging aspects of nurse development, complex decision making is crucial and poses risk to patient and prescriber should inefficient practices occur (Smith, Latter and Blenkinsopp, 2014).

The UK is recognised as being pioneering within its nurse prescribing (Courtenay, 2018). Education must offer innovative approaches to respond to the concerns of nurse prescribers who fail to prescribe in practice. TEL could be part of this development and elicit skills to promote critical thinking with independent decision making (McKenney *et al.*, 2015), enabling nurses to feel confident and capable of making safe prescribing decisions and meeting the whole patient episode of care that the NHS strives towards (HEE, 2014).

A study by Lymn and Mostyn (2010) used TEL approaches in the classroom to assist NMP in their understanding of pharmacology. The approach which utilised audience response technology, through question and answer interactive sessions, was evaluated by the students as promoting learning in a safe environment. The tool prompted students to consider answers and personally respond without fear of embarrassment or ridicule. Student satisfaction achieved a 100% response rate, with achievement of learning being reported at 92%. This type of TEL provides instant feedback and guides the learner to reflect on their knowledge. Providing opportunity for the student to assess their learning needs and seek knowledge creation. Ensuring key concepts of pharmacology for NMP are understood. Pharmacology knowledge is reported as one of the areas that NMP students have expressed as limiting their confidence in prescribing (Bradley, Hynam and Nolan, 2007, McIntosh, 2016). Without in-

depth understanding of these concepts, learning and safe prescribing cannot develop. Transformative learning can assist students gain confidence in the ability to develop knowledge formation skills that will influence practice (Cober *et al.*, 2015, Lymn and Mostyn, 2010).

The NMP course must provide pedagogical approaches that enable students to assimilate knowledge and integrate this into their clinical practice. It is essential the NMP feels confident and competent to prescribe throughout their careers. Education for NMP needs to produce successful knowledgeable practitioners who can lead healthcare (Bradley and Hynam, 2007; DH, 2010).

The development of curriculum design to be inclusive of TEL requires efficacy in planning and structuring the module. Modules that embrace TEL assert context to form the base of the curriculum rather than the traditional content analogy (Costa and Harris, 2017a).

### **Curriculum redesign**

In curriculum development it is essential to consider what aspects of the programme would benefit most from TEL provisions. Pickering (2016) expresses that teaching staff need to consider what works well within the current provision and make amendments to areas that are not going so well, where students appear to disengage, lose focus and report discontent. Within NMP the pharmacology component is a vital element that students need to assimilate for knowledge progression and understanding of the multiple complexities within prescribing. There is an abundance of research (Bloomfield *et al.*, 2010; Lotz-Sisitka *et al.*, 2015) to guide andragogy within higher education. Learning is considered to occur within a social context rather than merely through the transmission of information that lectures provide. Social-

cultural approaches to learning suggest that the tutor is an active guide to facilitate knowledge with constructive meaning (Harland, 2010). Post graduate students as registered with NMP modules, are considered to have developed skills that support their ability for knowledge creation, teaching resources need to provide methodologies that promote the students ability to assimilate this learning with application of theory into practice (Ho and Kember, 2018).

### **Flipped classrooms**

The methodologies used to teach within NMP could be developed to offer blended approaches which could provide students with TEL as a means of developing knowledge around many of the complex topics such as pharmacology. Combining TEL for self-directed study at students own pace as in e learning tools, can allow the student to digest information and progress using individual ontological dimensions. This would form a base of theoretical understanding that could equip them in subsequent classroom-based activities around the topic matter, such as pharmacology. This flipped approach to learning would provide a structure to learning and help prepare students to take control of their learning, to consider the strengths and limitations they have identified within the e learning syllabus and actively engage in their learning process (Voogt *et al.*, 2011; Choi, Lindquist and Song, 2014).

It is recognised that changing the pharmacology to a singular TEL strategy could hinder learning further. Without oral feedback and explanations that lectures /seminars provide it would be difficult for a lecturer to track student understanding and identify individual learning needs ( Lymn and Mostyn, 2010). Lecturer and student interaction facilitates support for students who may need help to interpret content and scaffold learning, some post registration



students within NMP modules have been out of formal education settings for a considerable time. Where these students will be guided to student support services within the university, facilitated sessions can underpin tacit knowledge (Lotz-Sisitka *et al.*, 2015).

Large scale lectures within pharmacology equally restrict awareness of individual learners needs (Rissman, Dubois and Franson, 2012). There is a wealth of information that is required to be transmitted from lecturer to student within this subject area, therefore minimising student participation in the session ( Rissman et al, 2012; Cober *et al.*, 2015).

Developing NMP curriculum could use the pharmacology component as an area that classroom-based TEL could be facilitated. This could be successive to student led learning through private study for example, TEL from e learning resources. The classroom activity therefore acting to clarify knowledge and add context to the subject matter. Approaches like those used by Lymn and Mostyn (2010), with audience response technology may engage students and empower individual's confidence in their personal learning.

Innovative participatory approaches are recognised to optimise student experience and enhance learning outcomes. Student participation in educational settings challenges capacity and tests the delivery of theory, adding shape to the content of the session (Kaveevivitchai *et al.*, 2009; Cober *et al.*, 2015; Gourlay, 2015). Using TEL designs that encourage student participation assists students in creating communities of knowledge sharing and discussion that can facilitate a culture of lifelong learning practices (Burrell et al, 1988; Petty, 2013). RPS frameworks detail that continued learning and professional development is an essential skill

for all NMP (Royal Pharmaceutical society, 2016), building this skill through education of NMP can enhance quality within the NHS and NMP programmes.

Within NMP there are topics such as legal frameworks, licencing of medicines and principles of prescribing that would also benefit from TEL approaches delivered within the design of the curriculum. Each area covers in-depth material that is necessary for safe NMP. Each aspect would need to be considered independently to assess the optimal approach suited to meet student learning needs and deliver high quality content. Participatory learning such as group work could enhance TEL further and support blended learning strategies (Ray and Berger, 2010; Rissman, et al, 2012; Gotlib *et al.*, 2016).

Where as TEL is part of the future learning curriculum and offers a variety of experiences for the learner, lecturers need to be aware that some students may be disadvantaged should their understanding of contemporary issues lack intellectual inquiry (Horne *et al.*, 2007). Participatory classroom learning activities should help overcome this. The practical aspects of NMP are supported by clinical supervisors. This resource supports students apply practice to the theory and facilitate synthesis of knowledge, students are able to gain lived experiences in the learning of NMP.

Developing and advancing programmes within nurse education is essential to meet the diverse and rapidly increasing needs within healthcare, alongside student expectations. Professional Standards in higher education set quality specifications that are part of a large global context. These are fundamental to providing exceptional programmes which bring people together,

maximising new approaches through flexible pedagogy and the use of technology enhanced learning (TEL) (Gordon, 2014).

### **KEY POINTS.**

- Incorporating strategies to include TEL into NMP modules can assist student participation in learning and embed key concepts.
- There are recommendations for HEI's to utilise blended learning approaches across all programmes.
- Student satisfaction can be increased with developing prescribing confidence.
- NHS policy strives to move care to a community paradigm.
- Nurse prescribing capability can improve the patient experience and access to healthcare.

### **CPD REFLECTIVE QUESTIONS**

- Have you had experience of using TEL in your learning? Reflect on how this may have or could impact on your knowledge and practice.
- How confident do you feel in your pharmacology and prescribing knowledge? Think of strategies that could increase your knowledge and promote lifelong learning in this subject.
- How do you maintain continued professional development of prescribing practices? How could you further develop your skills? How would this benefit the patient outcome?

## References:

- Bloomfield, J. G. et al. (2013) 'Clinical skills education for graduate-entry nursing students: Enhancing learning using a multimodal approach', *YNEDT*, 33, pp. 247-252. doi: 10.1016/j.nedt.2011.11.009.
- Bradley, Eleanor Brian Hynam, P. N. (2007) 'Nurse Prescribing', *Social Science & Medicine*, 65(3), pp. 599-609.
- Burrell, T. W. (Tom W., Astbury, S. M. and Mackay, P. M, (1988) Curriculum design and development : a practical manual for nurse educators. Prentice-Hall International. Available at: [https://librarysearch.northumbria.ac.uk/primo\\_library/libweb/action/display.do?tabs=detailsTab&ct=display&fn=search&doc=44UON\\_ALMA2124175200003181&indx=18&reclids=44UON\\_ALMA2124175200003181&recidxs=7&elementid=7&renderMode=poppedOut&displayMode=full&frbrVersion=3&frbg=&pcAvailabilityMode=false&dscnt=0&scps.scps=scope%3A%2844UON\\_ALMA%29%2Cscope%3A%28NRL\\_DS%29%2CEbscoLocal\\_44UON%2Cprimo\\_central\\_multiple\\_fe&vid=northumbria&mode=Basic&tab=default\\_tab&srt=rank&dum=true&vi\(freeText0\)=%27curriculum%27%27&dstmp=1528795337006](https://librarysearch.northumbria.ac.uk/primo_library/libweb/action/display.do?tabs=detailsTab&ct=display&fn=search&doc=44UON_ALMA2124175200003181&indx=18&reclids=44UON_ALMA2124175200003181&recidxs=7&elementid=7&renderMode=poppedOut&displayMode=full&frbrVersion=3&frbg=&pcAvailabilityMode=false&dscnt=0&scps.scps=scope%3A%2844UON_ALMA%29%2Cscope%3A%28NRL_DS%29%2CEbscoLocal_44UON%2Cprimo_central_multiple_fe&vid=northumbria&mode=Basic&tab=default_tab&srt=rank&dum=true&vi(freeText0)=%27curriculum%27%27&dstmp=1528795337006) (Accessed: 12 June 2018).
- Choi, E., Lindquist, R. and Song, Y. (2014) 'Effects of problem-based learning vs. traditional lecture on Korean nursing students' critical thinking, problem-solving, and self-directed learning', *Nurse Education Today*. doi: 10.1016/j.nedt.2013.02.012.
- Cober, R. et al, (2015) 'Teachers as participatory designers: two case studies with technology-enhanced learning environments', *Instructional Science*. Springer Netherlands, 43(2), pp. 203-228. doi: 10.1007/s11251-014-9339-0.
- Costa, C. and Harris, L. (2017) 'Reconsidering the technologies of intellectual inquiry in curriculum design', *The Curriculum Journal*, 28(4), pp. 559-577. doi: 10.1080/09585176.2017.1308260.
- Courtenay, M. (2018) 'An overview of developments in nurse prescribing in the UK', *Nursing Standard*. RCN Publishing Company Limited, 33(1), pp. 40-44. doi: 10.7748/ns.2018.e11078.
- Department of Health (2010) *Equity and excellence: Liberating the NHS* {White Paper}, The Stationery Office. doi: 10.1136/adc.2010.205294.
- DH (1998) *Review of prescribing, supply and administration of medicines*. Crown report. Department of Health. London
- Francis, R. (2013) *Report of the mid staffordshire NHS foundation trust public inquiry, New directions for youth development*. doi: 10.1002/yd.20044.
- Gotlib, J. et al. (2016) 'Knowledge of students of selected universities about expanding professional competence of nurses and midwives with reference to prescribing medicines, writing out prescriptions, and referring for diagnostic tests', *Polish Journal of Public Health*, 126(2). doi: 10.1515/pjph-2016-0017.

Gourtay, L. (2015) 'Student engagement' and the tyranny of participation', *Teaching in Higher Education*, 20. doi: 10.1080/13562517.2015.1020784.

Harland, T. (2010) 'Teaching in Higher Education Vygotsky's Zone of Proximal Development and Problem-based Learning: Linking a theoretical concept with practice through action research', doi: 10.1080/1356251032000052483.

HEE (2014) 'Five Year', (October). Available at: <http://www.healtheducationengland/fiveyearforward.co.uk>.

Ho, A. and Kember, D. (2018) 'Motivating the learning of part-time taught-postgraduate students through pedagogy and curriculum design: are there differences in undergraduate teaching?', *international Journal of Lifelong Education*, pp. 1-18. doi: 10.1080/02601370.2018.1470115.

Horne, M. et al. (no date) 'Using enquiry in learning: From vision to reality in higher education', doi: 10.1016/j.nedt.2006.03.004.

J Hall, J Cantrill, P. N. (2006) 'Why dont trained communty nurse prescribers prescribe?', *Journal of Clinical Nursing*, 15(4), pp. 403-412.

Joanne Lymn Alson Mostyn (2010) 'Audience response technology: Engaging and empowering non- medical prescribing students in pharmacology learning', *BMC Medical Education*, 10(73), pp. 1-10.

Kaveevivitchai, C. et af. (2009) 'Enhancing nursing students' skills in vital signs assessment by using multimedia computer-assisted learning with integrated content of anatomy and physiology', *Nurse Education Today*, 29(1), pp. 65-72. doi: 10.1016/j.nedt.2008.06.010.

Kroezen, M. et al. (2014) 'Changes in nurses' views and practices concerning nurse prescribing between 2006 and 2012: results from two national surveys', *Journal of Advanced Nursing*. Wiley/Blackwell (10.1111), 70(11), pp. 2550-2561. doi: 10.1111/jan.12404.

Lotz-Sisitka, H. et af. (2015) 'Transformative, transgressive social learning: rethinking higher education pedagogy in times of systemic global dysfunction', *Current Opinion in Environmental Sustainability*. Elsevier, 16, pp. 73-80. doi: 10.1016/J.COSUST.2015.07.018.

Matuk, C. F., Linn, M. C. and Eylon, 8.-S. (2015) 'Technology to support teachers using evidence from student work to customize technology-enhanced inquiry units', *instructional Science*, 43(2), pp. 229- 257. doi: 10.1007/s11251-014-9338-1.

Mckenney, S. et af. (2015) 'Teacher design knowledge for technology enhanced learning: an ecological framework for investigating assets and needs', *nstr Sci*, 43, pp. 181-202. doi: 10.1007/s11251-014-9337-2.

Neil Gordon (2014) *Flexible pedagogies and technology enhanced learning*. Available at: [www.hea/flexible-pedagogies-and-technology-enhanced-learning.co.uk](http://www.hea/flexible-pedagogies-and-technology-enhanced-learning.co.uk).

NMC {no date} *Revalidation | The Nursing and Midwifery Council*. Available at: <http://revalidation.nmc.org.uk/> (Accessed: 13 June 2018).

NMC Nursing Midwifery council (2019) *Standards for prescribing programmes*. Available at: <http://nmc.org.uk/> (Accessed 18.02.19)

Office for students (2018) Teaching in higher education. Available at: <https://www.officeforstudents.org/teaching>.

Parson, L., Childs, B. and Elzie, P. (2018) 'Using Competency-Based Curriculum Design to Create a Health Professions Education Certificate Program that Meets the Needs of Students, Administrators, Faculty, and Patients', *Health Professions Education*. doi: 10.1016/j.hpe.2018.03.008.

Petty, J. (2013) 'Interactive, technology-enhanced self-regulated learning tools in healthcare education: A literature review', *Nurse Education Today*. Churchill Livingstone, 33(1), pp. 53-59. doi: 10.1016/j.nedt.2012.06.008,

Pickering (2016) How to start using TEL. Available at: <https://www.hea/howtostartusing-tel/.co.uk>.

Porter, W. W. et al. (2014) 'Blended learning in higher education: Institutional adoption and implementation', *Computers & Education*, 75, pp. 185-195. doi: 10.1016/j.compedu.2014.02.011.

Robert Rissman, Eline Dubois, Kari Franson, A. C. (2012) 'Concept-based learning of personalised prescribing', *British Journal of Clinical Pharmacology*, 74.

Royal Pharmaceutical Society (2016) A competency Framework for all prescribers. Available at: <https://www.rparms.com/framework>,

Scamell, M. and Hanley, T. (2018) 'Midwifery education and technology enhanced learning: Evaluating online story telling in preregistration midwifery education', *Nurse Education Today*, 62, pp. 112~117. doi: 10.1016/j.nedt.2017.11.036.

Smith, A., Latter, S. and Blenkinsopp, A. (2014) 'Safety and quality of nurse independent prescribing: 2 national study of experiences of education, continuing professional development clinical governance', *Journal of Advanced Nursing*. Wiley/Blackwell {10.1111}, 70(11), pp. 2506-2517. doi: 10.1111/jan.12392.

T McIntosh, K. F. M. et al (2016) 'Influences on prescribing decision making among non-medical prescribers in the UK, A systematic Review', *Family Practice*, 33(6), pp. 572-579.

Voogt, J. et al, (2011) 'Teacher learning in collaborative curriculum design'. doi: 10.1016/j.tate.2011.07.003.

Willis, (2014) 'Raising the Bar. Shape of Caring Review', *Health Education England*, 83, p. 12. doi: 10.1126/science.1257891.

Yang, P. (2012) 'A system engineering approach: Integrating technology into the classroom-based curriculum', in 2012 international Conference on Systems and informatics {ICSAI2012}. |EEE, pp. 1000-1004. doi: 10.1109/ICSAI.2012.6223179.

