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Promoting collaborative playful experimentation through group playing by ear in Higher Education

The study described here explored first year undergraduate students' experiences on engagement in a short Group Ear Playing (GEP) programme and how it supported firstly, the development of the students' listening skills and secondly, group creativity and improvisation skills. The study also looked at the strategies that the students adopted in order to 'work up' (Woody & Lehmann, 2010, p. 111) familiar and unfamiliar musical repertoire through collaborative playful experimentation. The study placed emphasis upon playing by ear in a group, for group playing has been found to enhance listening and technical skills, motivate learners to practise with direct links to increased achievement (Hallam & Kokotsaki, 2007), create a sense of belonging and of making an active contribution to a group, support the creation of friendships and to boost the participants' social skills (Hallam & Gaunt, 2012). Playing in groups also supports teamwork skills, self-discipline and concentration, a sense of responsibility towards shared goals and purpose of the group; a sense of achievement and the development of a musical identity (Varvarigou, Hallam, Creech, & McQueen, 2013).

Playing by ear is a skill eulogised by James Mainwaring (1951a, 1951b) and Phillip Priest (1985, 1989) as ancillary to the development of musical literacy and creative musicianship. Mainwaring stressed that playing by ear is the most fundamental of all the performance skills. Priest proposed a model based on imitation and invention through which music learners could advance their aural abilities, setting stable foundations for the development of improvisation and composition skills. Experimental research with 101 high school instrumentalists by McPherson (1995) and McPherson et al. (1997) has also shown that playing by ear was the only attribute that correlated with the other four attributes

examined (improvising, performing rehearsed music, playing from memory and sight-reading), suggesting its significance in supporting their development.

Green (2008) highlighted that listening to and copying recordings by ear within a classroom context is an effective way of developing high school students' listening skills, critical musicianship and also of changing their perceptions of unfamiliar music repertoire, especially classical music. Playing by ear through copying recordings was also applied in one-to-one instrumental lessons (Green, 2012a, 2012b; Varvarigou & Green, 2015). In Varvarigou and Green (2015) in particular, transcriptions from the first session with seventy-five students revealed that the students and their instrumental teachers explored a variety of strategies on how to tackle the task. These strategies included finding the notes through playing isolated notes, experimenting with a riff, focusing on the rhythm first and then on the melody, dwelling on some notes awaiting for a riff to be repeated, and improvising so as not to disrupt the flow of the music. The strategies were the result of suggestions offered by the instrumental teacher, students' practical experimentation and exploration during the lesson, and of observations that students made of their teacher whilst the teacher engaged in ear playing in the lesson. These strategies resembled playful experimentation. The instrumental teachers' responses from the same project (Varvarigou, 2014, p. 8) underscored that playing by ear from recordings 'gave autonomy' to the students and supported the development of their listening ('[the students] listened with expectation/ [were] more aware of dynamic and phrasing') and improvisation skills; their confidence and enjoyment of instrumental playing.

Within a Higher Education context, exploring how western classical musicians could develop their listening, improvisatory and creative musicianship skills through playing by ear – an approach used extensively by vernacular (i.e. traditional folk, jazz, pop, world) musicians (Johansson, 2004; Nettl & Russell, 1998) – is an area that has recently received noteworthy attention. Research undertaken at the Sibelius Academy in Finland (Ilomäki,

2011, 2013) has shown that training in playing by ear contributes to keyboard players' development of improvisation, aural and social interactions skills. This was achieved by asking the students to: listen to and discuss a recorded musical example together and then individually transcribe and play 'by ear some elements of it, such as the outer voices or its harmonic framework' (2013, p. 129), or to harmonise folk songs and to bring pieces in popular styles into the classroom. Another project developed by the music faculty of The Royal Conservatoire, The Hague (Prchal, 2013) has focused on integrating improvisation into the curriculum of classical performers, for skills such as listening, improvisation and creative musicianship support HE students' artistic development, employability, entrepreneurship as well as a career as musicians in schools and the community.

A study by Woody and Lehmann (2010) is worthy of note here. The authors explored the differences in playing by ear ability between twenty-four undergraduate music majors: some were identified as formal classical musicians with vernacular music experience (i.e. playing songs from recordings, playing chord progressions on the piano, collaborating in groups to 'work up a song' (p. 111), improvising and composing music, 'mess[ing] around', improvising in a group, improvising solos to recorded accompaniments and composing original music) and some as classical musicians with no vernacular music experience. The authors hypothesised that the vernacular musicians would outperform the formal musicians on two playing by ear tasks – singing back and playing back on instruments. The findings confirmed that, firstly, the hypothesis was supported and secondly that there was a strong association between musicians' performance in the playing by ear tasks and their prior experiences. Whilst vernacular musicians had engaged in a variety of collaborative, exploratory and creative music-making throughout their instrumental tuition, the formal musicians, by comparison, had limited or non-existent prior experiences of such creative musical activities during their musical development. The authors concluded that playing by ear is largely absent from music education curricula, both in one-to-one

instrumental settings and in group settings when it is a 'foundational musical skill' (p. 113) so closely linked with improvising and composing/ arranging which can also promote lifelong music participation.

Musical skills such as improvising and playing by ear flourish as a result of collective experimentation and interaction within a music group (Johnston, 2013; Nettle & Russell, 1998). Johnston (2013, p. 387) and Thomson (2008) highlight that improvisation skills can be ideally nurtured through collaborative learning and group interactions, for musicians are free to collectively experiment together and to 'move beyond reproducing the music of others towards developing personal musical responses to their specific social and cultural situations'. For Johnston (2013, p. 392), a properly presented improvisation pedagogy rooted in collective experimentation is likely to support individuals to 'make important personal creative breakthroughs' and to 'nurture in students a disposition that recognises that our situations – both musical and social – are mutable rather than fixed'.

In the same vein, research on creativity (Spencer, Lucas, & Claxton, 2012) suggests that creativity is manifested through complex collaborations across social groups and that in order to be achieved the learners must be: inquisitive by identifying new problems rather than depend on others to identify them; persistent by focusing attention on the pursuit of a goal; imaginative by transferring knowledge from one field to another to solve problems and, disciplined by reflecting critically, crafting and improving.

The sample

Forty-six students took part in a 5-week Group Ear Playing (GEP) segment of a HE Practical Musicianship module¹ (n=7 Combined honours in Music; n=39 Single honours in Music; n=29/46 (63%) Females and n=17/46 Males). The students were randomly placed

¹ At the end of the five weeks the students were given an evaluation form and by ticking a box on at the top of the form they confirmed that they agreed 'for [their] information to be used for research and programme development'. The interviewed participants also offered their consent for their responses to be presented anonymously.

in eight groups of maximum six or seven students with at least one pianist in each group and they were given the freedom to choose between their principal instrument or their second or other instruments. The students played: violin (5), cello (1), double bass (1), flute (6), clarinet (2), oboe (1), trumpet (1), saxophone (4), piano (11), marimba (1), xylophone (3), glockenspiel (2), acoustic guitar (2), electric guitar (1), bass (2), recorder (1) and euphonium (1). The majority (28/46, 61%) chose their principal instrument and the singers (14/46, 30%) played the piano, xylophone, glockenspiel or their second instrument. All students had a Grade 8² or equivalent in their principal instrument and Grade 5 theory, which are pre-requisites for entrance to the Music Department where the study took place. This ensured a level of consistency in musicianship (technical competence and music theory) across the sample. Half of the student cohort started their degree with GEP as the first class with particular focus on ear training. For these students GEP was followed by five weeks of free improvisation exercises based on Stevens' (2007) book *Search and Reflect: Music Workshop handbook*³; taught by another colleague. The other half of the cohort joined GEP after five weeks of free improvisation exercises.

Procedure of GEP and data collection

Each group engaged in GEP for five weeks. On their first session each group was allocated a spacious room with an electric piano and the participants were asked to copy musical material provided to them by ear as a group. The tutor clarified that the task was not to produce an accurate imitation of the copied material. Instead, the students were free to make any changes they wished to the pieces copied, for example changes in the dynamics, tempo, rhythm, harmony and even the melody, as long as they kept the flow of the music. It was stressed that seeking perfection was not the focus of the activity. Instead,

² In the UK, the music exam boards tend to adopt a system of eight grades, with Grade 8 being the most advanced and a typical standard for admission of specialist music students in Higher education.

³ These exercises included the following: *Ghost, 1-2* and *Dot Piece*. For a full description of the exercises please see Stevens (2007).

playful interactions amongst the musicians and opportunities for creating new material were welcome. The tutor would then leave the room and return forty minutes later to informally record the students' piece at the end of each week's session. These recordings were taken so that each group could track their progress over the five weeks of the programme.

Before the end of each session the tutor distributed to each student a reflective log with the question '*Can you describe how you went about copying music by ear from a recording during the session?*' The reflective logs were collected on the day or were sent to the tutor by email before the following session. Johnston (2013) suggested that logs are a useful documental form of collecting detailed descriptions, so they were used in this study as a means to capture descriptions on individual and GEP strategies.

The audio material for the first two stages of this GEP programme was exactly the same material adopted in previous research projects on ear playing (Green, 2012b; Varvarigou and Green, 2015). This material was composed or arranged by Lucy Green and it is now available in the book 'Hear, Listen, Play' (Green, 2014). The material was uploaded on Blackboard, the university's Virtual Learning Environment, and all students had access to the material, which they could download as mp3 files or listen to directly from Blackboard. For the first two stages of the programme (weeks one to three) the students were asked to copy a popular music piece (Link Up) and one of six classical pieces by ear. For the third stage of the programme each group was totally free to select a piece of their choice, bring it in the classroom and, by following the same approach as in stages one and two, copy it by ear.

At the end of the programme each student filled in a short feedback form that sought their level of agreement (1 strongly disagree to 5 strongly agree) with a list of statements: 1) whether they had done ear playing similar to the Playing by Ear classes before; whether Playing by Ear classes 2) helped them feel more confident about playing by ear; 3) helped

them become more confident musicians; 4) helped them feel more confident about improvising; 5) improved their musical skills, in general; 6) information was communicated clearly; 7) the sessions were at the right level for them. They were also asked to respond to the open questions 'I most enjoyed...', 'I least enjoyed...' and 'Overall, what if anything (musical or other skills), do you think you might have learnt from doing the ear-playing task'. Space was also available for the students to add any comments they had about this particular unit within the Practical Musicianship module. Finally, four students (two males and two females) were interviewed at the end of the academic year after they completed the module. Three out of the four students selected received high marks for GEP but had reported in their forms that they had never engaged in group ear playing before. The fourth student was selected because she indicated in her logs and feedback forms that she found the programme 'out of her comfort zone' and non-enjoyable. All interviews were audio-recorded and transcribed verbatim for analysis.

Methods

The analysis of the data focused on thematic discovery from the transcripts and was achieved through open, axial and selective coding (Corbin and Strauss 1990; Creswell, 2007). During open coding categories were identified by a constant examination of the transcripts (236 sources, including 194 individual reflective logs, 36 feedback forms and 4 interview transcripts) and by 'repeated sortings, codings, and comparisons that characterize the grounded theory approach' (Creswell, 2007, 290). Open coding was followed by axial coding, where blocks of categories grouped together to describe core phenomena related to GEP in HE. Lastly, selective coding allowed for key concepts that were closely entwined to emerge and validate the interrelationship of categories in the analysis. This process of analysis allowed the researcher to shift concepts around until relations of the categories with each other and with the collective dataset were achieved.

Role of the tutor/ researcher

The tutor/ researcher facilitated the module. This included organising the groups, providing the audio material (for stages 1 and 2 of the programme), and recording the student groups at the end of each session. In line with the methodology proposed by Green on ear playing in the school classroom (2006, 2008) the tutor/ researcher explained and set the task going at the start of each stage. However, instead of standing back and observing the students engage in the task, she gave absolute autonomy to the students by leaving the room as she wished to avoid exerting control over the use of the recorded music and to avoid engaging in discussion with the students at the expense of playful collective experimentation (Varvarigou, 2014). During the first couple of weeks the tutor/ researcher occasionally visited the groups to check that they faced no technical or other issues but she was strongly encouraged to leave and return at the time that was set for the recording of the informal performances.

Analysis

The analysis of the data is presented below under four headings: Development of musical skills and knowledge through GEP, GEP strategies, GEP and improvisation, and Collaborative learning in GEP: benefits and challenges. These headings emerged through the processes of selective coding. The Tables provide information on the categories that emerged during the open (categories as single nodes) and the axial coding processes (grouped categories).

Development of musical skills and knowledge through GEP

To begin with, students' responses to the module feedback form indicated that 43% (20/46) had not engaged in GEP before – as opposed to 31% (14/46) who had and 26%

(12/46) who did not respond. The analysis of the reflective logs and the interviews offered an interesting insight into the musical skills and knowledge that the students reportedly developed through GEP. These included listening, repertoire appreciation and improvising skills, learning to play a new instrument, harmonising and listening for harmony, gaining knowledge of their instrument and creativity development (See Table 1).

Table 1: Development of musical skills/ knowledge through GEP

	Sources	References
Development of musical skills/ knowledge through GEP	39	107
- Learnt listening skills	19	24
- Repertoire appreciation	14	28
- Learnt to improvise	11	15
- Learnt to play a new instrument	7	15
- Learnt harmonising melodies and listening for harmony	7	9
- Gained knowledge of my instrument	6	6
- Ear playing develops creativity	2	3

Experimentation with self-selected or given repertoire reportedly supported students' listening skills by distributing attention to each part, listening to each other, picking out intervals, working out the key and focusing on pitching. Some students even claimed that they 'learnt' listening skills through GEP. GEP gave some learners the opportunity to play a new instrument; helped some others to 'gain knowledge of [their] instrument' and to develop creativity by only approaching the music repertoire aurally. In logs from the first week Eva reported finding ear playing 'helpful in understanding how different music works *together*'. Lucas explained that 'as others were working out the parts [he] experimented by playing the melody in a minor key, which sounded *interesting!*' In addition, during her interview Heather stressed that

'It has been really helpful to get some more dynamic...to combine classical music and contemporary repertoire...I did play on the cello some of the violin parts and I was able to identify the melody and to recreate it quite well. I think that being a string player has developed my pitch...I really enjoyed this session...I think it helps us develop our musical creativity.'

With regard to repertoire appreciation, the pop-funk piece of stage 1 (Link Up) was considered repetitive and easy, but a good piece to start with. The repertoire of the second stage of the programme was considered more challenging (see Collaborative learning in GEP: benefits and challenges). The third stage of the programme included a piece of the group's free choice. This appealed to the students who chose popular songs (Bad Romance by Lady Gaga; Pompeii by Bastille), film music (Concerning Hobbits by the Lord of the Rings; I am the Doctor Who) and Summertime by George Gershwin. Students' comments indicated that choosing a piece they liked motivated them to experiment with the structure of the piece and with ways to put the different sections together.

- *'In this third session we chose a piece of our choice. After some deliberation we chose Lady Gaga's 'Bad Romance'. We researched pop songs in C major to make things easier for the xylophones and this song was popular with everyone'. (Joshua, Log 3)*
- *'When we did the Lord of the Rings the structure of it was really bizarre; it had six-bar phrases and weird things going all way through. Learning the notes posed a few difficulties because of the few things that went out of key so we had to figure that out... But it was more everyone playing and knowing exactly where to go because nothing was written down, so it was knowing exactly what the structure was... So you had to learn the structure quite well so that you could skip the whole section; you had to know what came before and what comes after' (Lucas, Interview).*

GEP Strategies

The term 'strategy' is used here to describe a set of responses to copying music by ear from recordings that developed as a result of the learners gaining greater experience of attempting the task through practice and through observing others engage in the task (Green, 2012b). According to the students' responses most groups listened to the pieces

and allocated the different parts according to what they thought was the appropriate instrument (See Table 2). Then, each individual used various strategies to find the first note of the melodies in focus. These included playing a scale or playing random notes until they found one of the notes of the riff, which they then used as an anchor to develop the riff; focusing on the rhythm first; working out the key; 'guessing' the first note; playing pitch and rhythm together; two students wrote down the notes of the pieces played and one student sang a scale to find the first note. Moreover, some students reportedly engaged in personal practice in-between the sessions.

Table 2: GEP strategies

	Sources	References
Group strategies	41	133
- Listened and allocated parts according to appropriate instrument	22	37
- Deciding on structure: improvisation, introduction and ending	20	29
- Playing along with the recording	15	22
- Listened to CD and went through each part	14	20
- Last sessions for memorising the music	10	10
- Tried to harmonise	8	8
- Played without the recording	6	6
Individual strategies for finding the first note	27	59
- Played a scale	9	11
- Played random notes	8	12
- Personal practice	8	9
- Rhythm first and then the notes	6	7
- Working out the key	5	6
- Guessed the first note	3	4
- Pitch and rhythm together	3	4
- Writing down the notes	2	3
- Sang a scale upward to find the notes	1	1

Few groups did not allocate parts from the beginning but, instead, they learnt each part and then decided on which part to play. After each part was learnt the groups made decisions about the structure of the piece: introduction, ending and improvisation section. The groups listened to the recording several times and played along with the recording in order to build up the piece. Some students tried to harmonise to the melodies played by their colleagues and some groups worked out the pieces without the recording. The last

session was for some students a 'clean up' session where they had the opportunity to memorise their part and contribute more confidently to the musical experimentation through improvisation with other member of their group.

GEP and improvisation

Ross (Log 4) described how joining the different sections of each piece together led the group to improvise.

'This week we were playing Concerning Hobbits' with two new members to the group. In the short practice period we had to try and communicate the structure and individual parts. This was very hard to do in such a short time, which meant that when we went to record it, part of it was improvised adding a whole new element of playing by ear.'

Moreover, as the groups became comfortable with the music the members reported moving quickly into '*playing with music*' within a group. The individual strategies for improvisation adopted by the students included '*adding ornaments based on scales*', '*changing the rhythm*', '*incorporating other melodies*' and '*missing notes out*' (See Table 3). Listening to each other was a key mediator to improvising. Lucy, a pianist described how during the first week of GEP the group members used improvisation in order not only to play together but also to complement each other.

'After we played through the piece a few times, we then started to play around with our own parts, improvising our melodic lines, whilst still harmonising our parts and keeping in time with each other. This gave the piece a feeling of freedom and more of a swing to it...It was important to listen to each others' different parts, so we could keep time with each other and know when to come in with our own parts. And also to make sure every part could be heard individually during the piece, whilst keeping together and complementing each other.'

Complementing each other and ‘fitting with everyone else’ whilst improvising was also emphasised by Freya, a recorder player from a different group.

‘I learnt how to listen to others while improvising, so that what I was playing fitted with what everyone else was playing. I enjoyed it very much and would love to do it again. It was good to do something I have never done before’.

Group improvisation was instigated by the group members in order to ‘make the pieces sound more interesting’ and it was achieved by ‘altering the pieces’ structure’ and ‘improvising through harmonising/ fitting with others’ parts’ (see Table 3).

Table 3: GEP and improvisation strategies

	Sources	References
Individual improvisation strategies	16	27
- Adding ornaments based on scales	8	11
- Changing the rhythm for variety	6	7
- Incorporating other melodic riffs	3	3
- Missed notes out	2	2
- Experimenting by changing the key	1	1
- Creating broken chords	1	1
- Plucking and strumming the strings	1	1
Group Improvisation strategies	14	25
- Improvised to make piece sound more interesting	7	9
- Improvising by altering the piece structure	6	8
- Improvised as became comfortable with the music	3	3
- Improvising through harmonising/ fitting with others parts	2	4
- Copying and improvising at the same time	1	1

Lucy described in her second log how the group initiated experimentation that led to improvisation and switching around different melodic lines amongst the group members on the second week of GEP.

‘Following on from last week’s session, we continued with the same structure as we used before (round style and improvisation section) but this time experimented with each others’ different parts by switching them round on our different instruments. It was interesting to listen to the piece of music performed in this new way, and how a melody played on one instrument can give a completely different feel to the music, when played on another instrument. It was also interesting to hear everyone’s

new improvised section, which differed from last week's session, and to hear it *swapped round on our various instruments.*'

Jonathan, a clarinettist in Lucy's group, explained during his final log how altering the pieces' structure was part of their creative experimentation with the given material, which made the pieces their own.

'As we knew our parts we decided to improvise our piece to make it sound different. We improvised the structure making it into ternary form. We started with the bass on its own, then added piano chords. I then came in with the melody A, then we all dropped out and bass B and melody B played once they finished A came in again. In Link Up we came in one by one the split off into our groups in the form of ABA, we all then improvised on our parts.'

Freya, reported on the third week of GEP that group interaction and playful experimentation, where the group decided that *'it [her melody] sounded good'* although it was *'quite dissonant'*, increased her confidence as her improvisation skills developed.

'This week was a re-learning process for my tune as a reminder. We then tried the given structure but when I played my part with the bass and piano it seemed to be quite dissonant and to not fit together but we decided that it sounded good that way. We then did our own structure and went onto improvising. My improvising got better as the time and my confidence went on and by the end I was much more fluent and improvising singly and also with fitting with the other members of our group.'

On the fourth week of GEP and after quite a lot of experimentation with improvisation, listening, and *'thinking about the pieces'* the groups kept developing new arrangements in their quest for making the pieces *'more interesting'*. Freya wrote

'This week we went back over the Link Up tune and found it a lot easier to improvise with confidence though I now know to know what key you are in before improvising otherwise it goes wrong but I did find the key after two very bad B naturals rather than B flats when going over the classical tune I only needed two plays through reminders to remember my tune and then the improvising came more easily. We haven't so far done the same arrangement which is good because it means we can have lots of variations when it comes to performing.'

Collaborative learning in GEP: Benefits and challenges

Collective experimentation supported the development of social skills, which were reported as one of the greatest benefit of GEP. In particular, the students who faced difficulties in working out the pieces on their own received substantial support from their colleagues, as highlighted by a wealth of students' comments on how GEP supported collaborative learning (see Table 4). Alex described how a member of his group helped him learn the rather challenging melody from the free choice piece after he had missed a session due to illness.

'...This was more of a difficult melody to learn, as I am far more accustomed to learning just simple chords. With the aid of a group member we isolated the pitches to notes and learnt from there. I then started to learn the melody segment by segment with rhythm being a tad fast. When the group played I changed the tempo of my piece and so the rhythm was then slowed down and fixed. The ensemble group as a whole found this piece more difficult than the rest but we played and developed it. We found it much more rewarding to learn. Because we had some new people doing this piece (2 of us were ill the previous week) those that knew it better helped those that did not.'

Lewis was a competent pianist with particular interest in jazz, who regularly supported members of his group. He explained that close collaboration and practising *'helped working out the pieces as a group rather than individually because it meant that we could help each other out on areas we were struggling with'*. The salience of practising as a group was echoed, amongst others by Elliot, a guitar player who added that his final stage of leaning a new piece was to *'understand how [his] part fitted in with everyone else, which was accomplished by practising as a group'*.

Likewise, a plethora of comments indicated that collective experimentation during GEP helped the participants experience the feel of creating 'new' music together. It also helped them to develop social skills such as leading, following, communicating and 'giving

away' in group music making. Some of the comments in relation to how GEP helped participants to work well with one another include the following:

- *'Really good idea for a module. Allows great teamwork to take place with good quality musical results'. (Joshua - xylophone)*
- *'I really enjoyed the ear training and it did not only improve my skill of playing by ear but also listening to others and being aware of others in the group'. (Phillipa – marimba)*
- *'As well as honing my ear skills it has helped me to improve teamwork and ensemble skills. Both helped [me] to become a more rounded musician'. (Elliot – bass)*
- *'I also learnt how to help, encourage and co-direct an ensemble of various experiences/ instruments'. (Ross - electric guitar)*

Table 4: Collaborative learning in GEP: benefits and challenges

	Sources	References
Benefits	41	100
- Peer learning	31	56
· <i>Making 'new' music as a group</i>	18	22
· Group work on harder parts	13	18
· Fellow performers helped me	7	9
· Teaching another performer	7	7
- Working with other people well (leadership, social awareness, teamwork, communication skills)	27	39
- Gained confidence by playing with others	2	2
- Recording each group made people work	2	2
Challenges	33	73
- Classical pieces technically challenging	19	27
- Remembering the music	15	16
- Least enjoyed a self-conscious feeling	5	5
- Least enjoyed to get the group to focus	4	5
- Making sure everyone is 'one the same page'	3	4
- Out of my comfort zone	3	9
- Different instruments difficult to put together	2	2

GEP did not come without challenges. The classical melodies and bass lines of stage two were identified by the students as challenging to learn by ear as the long phrases were difficult to remember. For example, during his interview Lucas explained that he was not too keen on stage two.

'...I found that trickier than other play by ear things because Mozart is nuts! What he was sort of doing was much trickier because there was a lot of notes and it changed *all the time...it is almost through-composed* but the ideas are so fast and technical *that it became really difficult to play*'.

This view was echoed by Jonathan (Log 2) who said that the Mozart piece

'...*was a lot more challenging [than Link Up] due to more texture*. I mainly took the tune with Zoe. It took a while to work out the notes but turned out fine, we made it our *own with a little intro and recap at the end*'.

Fifteen students reported forgetting the riffs and musical input in-between the sessions. Five students reported that they least enjoyed the 'feeling of being self-conscious', whereas four students mentioned '*trying to get the group to focus*' and three making sure that everyone was '*on the same page*'. In particular, Lucas, a bass player, explained that 'making sure that everyone was on the same page more than learning the notes... *getting it so it was all together in the right place*' was a real challenge. Heather, his cellist group mate, agreed with him and added that she was conscious about '*trying to explain what you want from them but then allow them to be natural as well*'.

Megan was a first study singer who played her second instrument, the violin, for the purpose of the programme. Megan reported in her log, feedback form and interview an overall discomfort with playing by ear; in her own words she felt like 'being at the wrong party'. The absence of written music in combination with the fact that she could not use her voice (her principal instrument) 'knocked [her] confidence'. This made her withdraw from actively engaging in collaborative exploration; instead she reported enjoying listening to her group members' explorations. Nonetheless, Megan eagerly accepted the invitation to be interviewed. During the interview she talked very positively about the structure and aims of the programme and emphasised very strongly that ear playing is 'important for

general musicianship' and that it should start early in one's musical learning. Finally, Dylan, a euphonium player, whose group consisted of different transposing instruments, stressed in his second log and feedback form that *'the different instruments [were] difficult to put together due to the varying pitches and tones'*.

In closing, GEP was very well received by the students despite the various challenges reported, which will be discussed below. The students reported that GEP supported the development of their listening skills and provided strategies for improvisation through playful experimentation, peer learning and group collaboration. Students highlighted that improvisation in GEP felt comfortable and could not have been introduced in a better way other than a group setting.

Overall, responses from the module feedback form indicated that GEP helped the students develop strategies on how to learn to play by ear; it made them more confident about improvising and more confident musicians. 85% (39/46) agreed or strongly agreed that through GEP they became more confident about playing by ear and 78% (36/46) that they became more confident musicians; 78% (36/46) reported that the programme was at the right level for them; 80% (37/46) reported that the programme improved their musical skills in general; and 72% (33/46) acknowledged that the programme has helped them to be more confident about improvising. Some of the comments they offered in their feedback form are presented below.

- *'I learnt to improvise in a more classical style, which put me out of my comfort zone but has also helped me get a better understanding of certain classical structures'* (Max – piano)
- *'I feel confident that I have made progress, and will eventually be able to cement the notes in place, allowing me to improvise around the tunes.* (June– trumpet)
- *'I think it helped with my improvisation skills, regarding improvising on a piece already learnt. I also think it helped me to be able to identify the chords within a piece'* (Dylan– euphonium)

Discussion and recommendations

Playing by ear has been identified by musicians, educators and scholars as a necessary musical skill for successful working musicians that supports the development of musicianship and in particular the ability to improvise, perform rehearsed music, playing from memory and sight-read (Mainwaring, 1951b; McPherson, 1995; McPherson et al., 1997; Priest, 1985, 1989). Unlike previous studies on playing by ear through recordings with secondary school pupils (Green, 2008) or in one-to-one instrumental lessons mainly with beginners or intermediate instrumentalists (Green, 2012a, 2012b; Varvarigou & Green, 2015) this article described a short Group Ear Playing (GEP) programme with western classical first year undergraduate students. The programme explored how copying music by ear through recordings supported the students' listening, creativity and improvisation skills, and the strategies that the students adopted when copying familiar and unfamiliar musical repertoire through collaborative playful experimentation.

Copying music by ear is naturally the main way to learn in traditional folk, jazz, pop and world music programmes and a skill widely adopted by vernacular musicians because it facilitates not only learning new repertoire but also collective musical, and often improvised, interactions through playful experimentation rooted in group collaboration and peer learning (Johnston, 2013; Nettl & Russell, 1998; Thomson, 2008). However, there are different ways that playing by ear is part of various higher music education curricula (Ilomäki, 2011; Johnston, 2013; Reitan, Bergby, Jakhelln, Shetelig, & Oye, 2013). Traditional ear training programmes, that use playing by ear such as the programme by Ilomäki discussed earlier focus on faithful and errorless reproductions of the music copied. By contrast, this programme allowed the students to create their own version of the pieces they copied by ear, whilst developing their listening, creative and improvisation skills at the same time. Moreover, Buehrer (2000) argued that traditional aural skills programmes leave the students to solve tasks alone, when they could actually benefit from collaborative learning and the mutual sharing of views. Emphasis on playing by ear and on

experimenting in a group was reportedly one of the strengths of this aural training programme.

There are several issues here relating to how GEP could support aural training in Higher Education that call for some further discussion. To begin with, it has been suggested by the students that the repetitive and musically simple repertoire that was provided acted as a scaffold that supported both the development of ear playing skills and it encouraged collaborative playful experimentation. This playful experimentation reportedly developed the students' improvisation, harmonising, listening, creative and collaborative skills. With reference to improvisation, the students experimented together with rhythmic and melodic embellishments, they missed notes out, changed the harmony in order to *'fit with others' parts'* and they engaged in improvisation in a natural and gentle way with the aim to *'make the pieces sound more interesting'*. As the complexity of the music increased these western classical musicians used existing musical skills and expertise to engage in musical exploration, harmonising and listening for harmony. It appears, therefore, that harmonising by ear whilst playing with others might be one possible way of introducing western classical musicians to improvisation.

Secondly, the use of real pieces of music rather than short aural exercises appeared to motivate these musicians to engage in playful experimentation and improvisation. Reitan (2015) argues that musicians' aural training is mainly concerned with melody, rhythm and to a small degree harmony, and this approach does not develop the musical ear that the musicians need in professional performance practice. Arranging the parts to suit 'appropriate' instruments and harmonising were amongst the musical activities that the GEP programme encouraged the students to engage with. With the exception of keyboard players (Ilomäki, 2011, 2013), very few western classical instrumentalists focus on experimenting with harmony to 'create new music together' during their aural skills training (Reitan, 2015), and yet harmonising and arranging music is an important skill for

musicians' professional careers (Blix, 2013; Smilde, 2009). This programme allowed the students to playfully experiment with given music and to create 'new music' through collaborative decisions on structure, harmony and improvisation.

Reitan (2015) also emphasises that apart from professional performance practice choosing 'real music' also impacts on musicians' motivation to engage in improvisation and musical exploration, which are necessary skills for artistic development and employability (see also Prchal, 2013). The students reported that the repertoire used in GEP enabled them to develop a variety of strategies required during harmonising and improvising, which were not necessarily idiomatic to a particular genre. If further pursued, this and similar programmes could make these classical musicians more flexible and rounded artists (Blix, 2013; Johnston, 2013; Reitan, 2013; Smilde, 2009).

Thirdly, the students' playfulness was also extended to picking up an instrument that they had not played before such as the xylophone or the glockenspiel, or by choosing to play their second instrument or an instrument that they liked, such as the recorder or the melodica. Some students acknowledged that this form of playful experimentation helped them to gain further knowledge of their first instrument.

Fourthly, GEP helped the students to develop their group creativity by: trialling a variety of strategies whilst 'messing around' (Woody & Lehmann, 2010, p. 111) with the pieces; arranging the pieces for unconventional ensembles; focusing their attention on rehearsing and learning together the pieces they chose through 'sticking with difficulty, daring to be different and tolerating uncertainty' (Spencer et al., 2012, p. 35). A good example of group creativity was Lucy's account of her playing '*dissonant music*' that did not appear to '*fit together*'; yet the group decided that '*it sounded good that way*' and her version was adopted for the final performance of their piece.

Fifthly, the students were given full autonomy with regard to their musical interactions and this was marked by the absence of the tutor during the process of

learning and experimentation. Experimenting together helped these musicians practise ways of collaborating and interacting socially and musically, which are necessary skills in any professional or amateur group music-making context (Hallam & Gaunt, 2012; Ilomaki, 2011, 2013).

To conclude, it is important to consider alternative ways of engaging in GEP, so that negative experiences are avoided. This module invited all students to play an instrument, rather than use their voice as an instrument. This is not something unusual in HE programmes where students are often expected to take up compulsory modules such as keyboard skills regardless of whether they are confident or competent pianists. Giving the students autonomy to choose the instrument they wanted to play, allowing them to decide the degree (i.e. peripheral or complete) of their participation to playing by ear, group experimentation and improvisation; starting with repertoire that was within their technical abilities but at the same time it provided challenges and motivations for group problem solving; and giving the students the option to choose repertoire for playing by ear in a group have been reported as factors that positively contribute to encouraging the students to engage in GEP and minimised negative experiences.

The assessment of the musical outcomes that the students produced during their weekly experimentations is beyond the scope of this article, however, further research could turn its attention to systematically monitoring GEP of small instrumental ensembles with particular focus on the creativity (Spencer et al., 2012) and genre-specificity of the improvisation played. Woody and Lehman (2010, p. 113) stress that ear playing and improvisation in bands or other instrumental ensembles is either presented as an 'option or, worse yet, an odious exercise'. The approach to copying music by ear from recordings with popular music, classical music and free choice material that was adopted is proposed here as an approach to or one stage of a longer process on nurturing and encouraging the development of listening and improvisation skills in western classical musicians. These

musical skills not only support the development of creative musicianship and employability but also the enjoyment of group music making which could last learners for a lifetime.

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