

Learning and teaching breathing and oboe playing: action research in a conservatoire

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This paper presents findings from action research in a conservatoire (the Guildhall School of Music & Drama) which focused on teaching and learning effective breathing in playing the oboe. A range of approaches and techniques emerged from a literature review. These were implemented in practice with oboe students at the Guildhall School, and changes in their practice and perceptions of breathing were analysed. Participants' responses to the approaches used were diverse, emphasising individual learning styles. Considerable changes in their breathing practice as oboists were observed, and in addition it was noted that in several cases their approach to learning became more reflective and self-directed.

Introduction

This paper reports on action research I undertook as an oboe teacher at the Guildhall School of Music & Drama with undergraduate and postgraduate students. The aim of the research was to explore a range of approaches to teaching and learning breathing in oboe playing, and to understand more about their impact on students' development of their practice as instrumentalists.

The literature relating to this field has been reviewed (Gaunt, 2004), and discrepancies have been identified in the breathing practices adopted by different professional oboe players, and between different approaches to teaching breathing and oboe playing, which have tended to be based on personal experience rather than on systematic research (Rothwell, 1962; Koch, 1990; Driscoll, 1997; Goossens & Roxburgh, 1997). These findings have indicated both a need for research to underpin practice in this area, and the importance of a range of strategies for teaching breathing, given that the practice of professionals can differ considerably; as breathing in oboe playing can effectively be conceived in different ways, what works for one person may not necessarily be so successfully replicated by all students.

The literature review confirmed that with oboe playing, as for all wind playing, 'effective breathing is the foundation of all good playing' (Snell, 1997). It was evident that a model of *correct* breathing could easily be counterproductive, creating mental and physical tension, rather than building on an individual's potential. However, a range of key issues which might, in different situations, support the development of effective practice was identified. These are summarised in Table 1.

The research reported in this paper aimed to implement a programme of teaching based on these key issues in breathing and oboe playing, and to evaluate their impact on student learning.

Table 1 *Key issues to be considered in supporting the development of effective breathing in oboe playing*

Anatomical and physiological understanding, and awareness of breathing in playing

Understanding of the fundamentals of the anatomy and physiology of breathing (Canter, 1997; McChrystal, 1998; Langford, 1999).

Awareness of the directions of the out-breath: air moving up towards the crown of the head, and the in-breath: air moving down to the base of the lungs (Sanders, 2002b).

Awareness of potential postural distortion as a result of the muscular pressure involved in producing sound on the oboe (Rothwell, 1962; Myers, 2001).

Connection between breathing and posture/movement

Focusing on the out-breath as the active phase of breathing, and on the in-breath as an automatic response (Sanders 2002a, 2002b).

Focusing on the contrary motion between the direction of the breath and the movement of the rib cage in breathing out and in (Pay, 1996).

Focusing on flexible and energised physical approach, avoiding excess tension (Robinson, 1988; Driscoll, 1997).

Treating playing as an athletic activity, and therefore maintaining physical flexibility and appropriate fitness, warming the body up and down before and after playing (Williams, 1999).

Connection between breathing and musical expression

Matching the in-breath to the requirements of the phrase in terms of size, timing and expressive quality (Snell, 1997).

Awareness of trends in oboe playing to play very long phrases without a pause in the sound, and of the physiological implications of this (Sanders, 2002a).

Connection between breathing and performance

Awareness of the multi-faceted connections between breathing and physical, mental and emotional aspects of playing (Wills & Cooper, 1988; Widmer *et al.*, 1997).

Avoiding breath holding, or taking many in-breaths without breathing out between phrases (Driscoll, 1997).

Improving breathing practice through strengthening the body's natural system rather than imposing a particular model (Williams, 1989).

Methodology

An action research framework (Zuber-Skerritt, 1996; McNiff & Whitehead, 2002; Robson, 2002) was used in this study as it could be implemented within my existing teaching within the Guildhall School, without compromising ethical considerations, and had strong ecological validity (Robson, 2002). The limitations of this framework, however, were twofold: firstly that in working with my own students my interpretations of the data were biased by my prior knowledge of, and ongoing interaction with them; secondly that the students' willingness to engage in the research and the perceptions they articulated were coloured by their relationship to me as a teacher.

A range of learning environments was made available to the oboe students including their existing one-to-one lessons, a seminar on the anatomy and physiology of breathing, Alexander Technique classes and workshops focusing on breathing. The structured programme of activity is shown in Table 2. Participation in the research was voluntary and allowed students to choose to participate in some, all or none of the activities.

The research also included a session of laboratory testing of individual breathing processes in playing, which provided digital data relating to lung volumes being used in playing and changes in blood chemistry. This constituted valuable visual feedback for participants about their breathing. Furthermore it meant that connections could be made between the anatomical and physiological changes during playing and participants' subjective experience, for example between rising levels of carbon dioxide in the blood and an increasing urge to breathe in, which was commonly experienced whilst playing. However, the detailed methodology and findings of this part of the research are beyond the scope of the current paper and will be reported elsewhere.

Data relating to changes in the participants' breathing practices were gathered in a way which could also inform their own learning processes, so strengthening the ecological validity of the research. This was done through a variety of methods, shown in Table 3.

Triangulation of the data was provided by three perspectives: the participants' perceptions, my perceptions as the teacher, and the more objective evidence of the video recordings. This triangulation aimed to go some way in bringing to the surface elements of my own bias in analysing the students' practices, and indications of the ways in which students were influenced by their particular relationship to me as a teacher when articulating their perceptions about breathing.

Eleven of the group of thirteen oboe students in the School elected to take part in some or all of the research. Detailed examples in the findings are drawn from four participants who took part in all aspects of the research, as it was for these participants that the most comprehensive data were gathered. A table of the students' participation in the research is shown in Appendix 1.

Ethical considerations

Participation in the research was voluntary. An initial introductory session was set up to inform all the oboe students in the School about the research, its rationale, aims, methods and potential outcomes. Following this session, informed consent was sought from all those who wished to participate. It was made clear that students could choose whether

Table 2 *The structured programme of activity in the action research*

| Week | Activity undertaken |
|--------|--|
| Week 1 | Introductory presentation to all oboe students in the School. |
| Week 2 | Ongoing individual oboe lessons. |
| Week 3 | Anatomy and physiology seminar – why we breathe; key elements of breathing e.g. breathing made possible by the differences in air pressure inside the lungs and outside; muscles involved in breathing; contraction and relaxation of breathing muscles and the direction of their movement, especially the diaphragm, intercostals, abdominals and trapezius; direction of the flow of air in breathing; ‘support’ muscles for the diaphragm e.g. abdominals and psoas; implications of oboe playing for breathing, including longer out-breaths, air pressure required and the consequent tendency towards hypertension. Ongoing individual oboe lessons. |
| Week 4 | Practical workshop on breathing and oboe playing – focus on developing awareness of breathing: practical experimentation with directing the air flow in different ways (for example breathing out imagining the air flowing out from the top of the head, and breathing out fully then allowing the in-breath to be automatic and requiring no conscious effort); body mapping the different breathing muscles, and exploring the fact that there is no conscious feeling of the diaphragm. Ongoing individual oboe lessons. |
| Week 5 | Practical workshop on breathing and oboe playing – focus on stimulating freer, more expansive breathing, and breathing which engages the abdominal and psoas muscles: exercises to warm-up and energise breathing muscles and to stretch and loosen them; exercises to stimulate release of particular muscles to encourage more expansive breathing, for example sitting and bending forwards to allow upper body to flop over knees and head to drop, so allowing the lower back muscles to release, and encouraging breathing into the back. Alexander Technique workshop. Ongoing individual oboe lessons. |
| Week 6 | Practical workshop on breathing and oboe playing – focus on connecting breathing to musical issues – working with short studies or pieces of repertoire, experimenting with breathing at the rate of the pulse of the music, considering the size of in-breath in relation to the length of the phrase, and the quality of the breath in relation to the mood characterised by the music. Ongoing individual oboe lessons. |

Table 2 *Continued*

| | |
|---------|---|
| Week 7 | Practical workshop on breathing and oboe playing – focus on students developing their own warm-up routine to include establishing their most effective breathing practice. Ongoing individual oboe lessons. |
| Week 8 | Practical workshop on breathing and oboe playing – review of the warm-up routines, and a focus on breathing and anxiety: discussion of how anxiety affects breathing; experimentation with exercises to help work through anxiety, eg. panting and vigorous breathing followed by a slow out-breath; measured breathing with longer out- than in-breath; measured breathing followed by a short period of holding the breath. Alexander Technique workshop. Pilot laboratory testing of breathing and oboe playing; digital traces collected. Ongoing individual oboe lessons. |
| Week 9 | Individual Alexander Technique sessions. Ongoing individual oboe lessons. |
| Week 10 | Individual Alexander Technique sessions. Anatomy and physiology seminar based on findings from the pilot laboratory testing. Ongoing individual oboe lessons. |
| Week 11 | Ongoing individual oboe lessons. Discussion with Alexander Technique specialist. |

Table 3 *Data collection*

Video recordings of participants performing

Video recordings were made of each participant performing at the beginning and end of the research.

Questionnaire

Participants filled in a questionnaire focusing on their physiological understanding of breathing and their perceptions of its impact on their playing.

Interviews with participants using stimulated recall with the video recordings

The participants were interviewed a few days after each video recording. In the interview the recording was used to stimulate recall and reflection on the breathing patterns. Participants were asked to describe what they noticed in the video recording in relation to, for example, the frequency and size of in- and out-breaths, the relationship between breathing and posture and movement in playing, or between breathing and musical expression in the playing. They were asked to recall physical sensations relating to breathing and to evaluate the role of breathing in their playing.

Reflective notes

I made notes of my perceptions as a teacher of the participants' breathing patterns in the performances which were recorded, and notes reflecting on the workshops and seminar I led. The video recordings were also reviewed by the Alexander Technique specialist and we met to discuss our perceptions.

Observation of my work by a critical friend

Three of my teaching sessions were observed by a senior colleague in the role of a critical friend, who then gave me feedback in relation to questions about my approach which I had identified.

to participate in all, some or none of the project, and that any student deciding not to participate in the project would not be advantaged or disadvantaged with regard to their position in the college, in terms of access to teaching and learning or assessment. Potential risks and benefits of the project were described, and participants were free to withdraw from the project at any time. Guarantees were made regarding confidentiality and anonymity in relation to the data gathered, and participants were informed that permission would be sought before dissemination of findings. In this paper the names of all the participants have been changed to maintain anonymity, although the gender of each participant has been retained.

Findings

The findings are presented in two sections. Key issues relating to breathing which emerged at the beginning of the action research are considered first. The changes which participants experienced in their breathing through the course of the research are then described.

Initial breathing issues

Breathing being physically uncomfortable and musically intrusive

At the start of the research, the participants all indicated that a key aim was to be able to breathe more comfortably whilst playing. They characterised breathing as a problematic aspect of playing, and described their experiences in terms of physical discomfort, getting in the way of musical impetus. Belinda felt that her breathing was often affected by a sense of panic in performance, and that when the panic started, her breathing would be 'the first thing to go out of the window'. Her abdominal muscles would stop working and she would forget to breathe out. She felt that, as a result, she was not able to communicate musically in performance. Terry reported that his goal was to play:

... without worrying about having to breathe, without having to consciously always think about your breathing. Because there are so many other problems that one can have, you don't want to have to worry about that one as well.

In articulating how he might achieve his aims, however, Terry also highlighted one of the key challenges in teaching and learning breathing: the tension between a natural way of playing, between breathing without thinking, and the process of establishing a highly efficient habit or craft, tailored to the specific instrumental and musical task. He identified his tendency to think about breathing reactively, in response to uncomfortable physical sensations, and his wish to develop a more proactive approach:

HG: How much of the time ... were you thinking about your breathing?

T: Not at all, I don't think so, apart from ... 'Oh I've got to take a bigger breath here, it's a longer phrase'.

HG: ... you've just said 'I'd really like to be able not to think about my breathing', but then you're not thinking about your breathing.

T: To be able not to think about it, and it be right! . . . I've thought about it after it's happened, maybe half way through a phrase I think 'oh that wasn't a very good breath was it, because I'm really struggling now', but I'm not thinking about it at the time, . . . so I actually need to think about it, before I can not think about it again, if that makes sense.

Terry wanted to work on his breathing so that he could trust it to work well automatically, so allowing him to turn his conscious attention to other aspects of music making.

Limited physiological understanding

Initially, most of the participants had little knowledge about the anatomy and physiology of breathing. They could identify few muscles involved in breathing, and struggled to describe differences between clavicular, thoracic and abdominal breathing. Many of the participants also held confused ideas about key breathing issues, for example the direction of the breath in playing, and the function of the diaphragm. A typical image of the diaphragm was of a short band of muscle lying horizontally underneath the bottom of the ribcage or slightly above, and extending across the front of the body but not necessarily reaching either side, or being connected to the back. An example is shown in Fig. 1, and contrasts with the medical illustration shown in Fig. 2. However, whilst a few of the participants were keen to learn more about the anatomy and physiology of breathing, most did not see this as relevant to their practical work.

A strong relationship between breathing and tense posture/movement

A common tendency at the beginning of the research was to take noisy and gasping breaths, with the head tilted forwards and down in order to play or breathe out (so compressing the front of the neck and chest), and then to tilt the head up and back to breathe in (compressing the back of the neck). This pattern was often accentuated whilst breathing out between phrases, when the process needed to be quick, or whilst trying to play quietly. For example, Hannah commented on her first video recording:

. . . you can see when I'm struggling in the quiet passages, or when something's gone wrong, or I'm stressed about something, then I immediately hunch up and pull my neck in towards the music . . . I think I'm also really lopsided, my shoulder, people have said to me that I always lift my left shoulder up . . . that seems to be higher all the time, and tense . . . I can see those bits in the study when you're trying to play really low and quiet, and the immediate thing is to tense up, I really do that all the time.

As Hannah indicated, the demands of playing quietly seemed to generate a particular fear and resultant tension, with an associated approach of trying to control a note, rather than allowing it to happen. She was experiencing difficulty in trusting herself to manage the physical demands and consequently was putting in too much effort.

A second area of importance was how participants used the lower part of the body. Terry immediately drew attention to where he placed his feet when playing in the first video, linking this to a more general feeling of being unbalanced and uncomfortable.

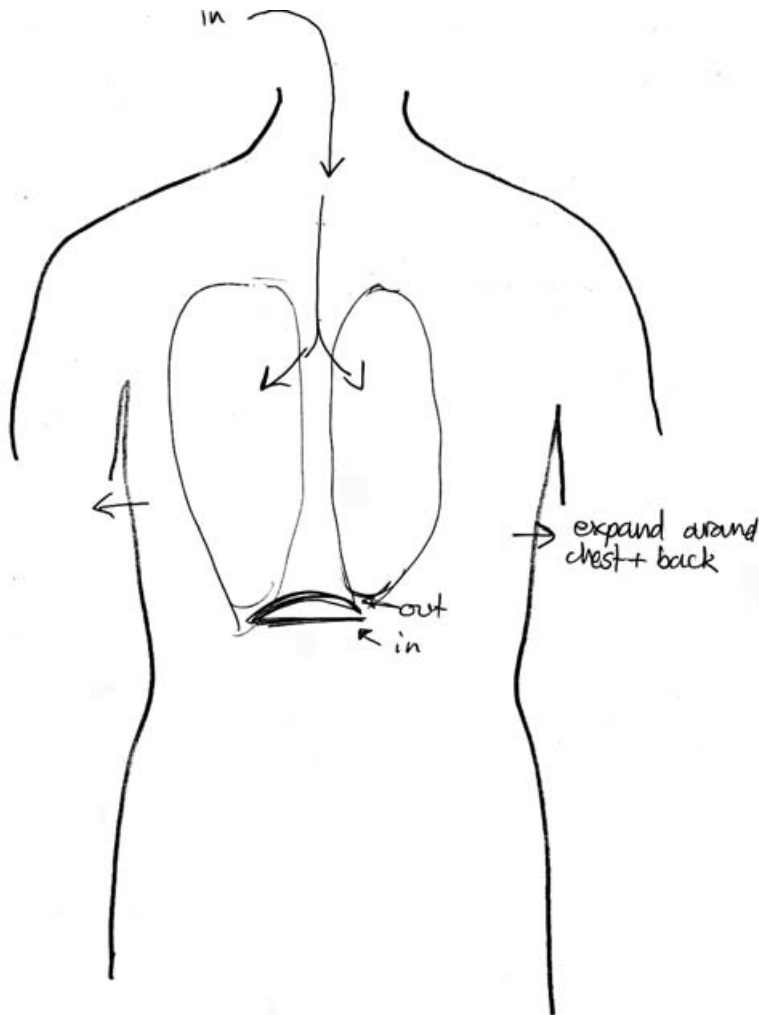


Fig. 1 A participant's representation of breathing muscles in playing the oboe

Hannah developed the connection between feet and overall balance through the idea of being grounded. At first she suggested: 'I don't, when I'm playing solo, think about my waist downwards whatsoever.' When, however, we discussed her feet being close together in the first video, this triggered her memory of a masterclass which she had found most helpful. Here she had worked with the teacher on balance, being firmly planted on both feet but also lifting up through the body. It transpired that in addressing issues to do with tension and a repetitive strain injury, she was doing regular Pilates and weight-bearing exercises, but these were all focused on the upper part of the body, especially shoulders, chest and arms. As a result of reviewing her first video recording, however, Hannah decided that she

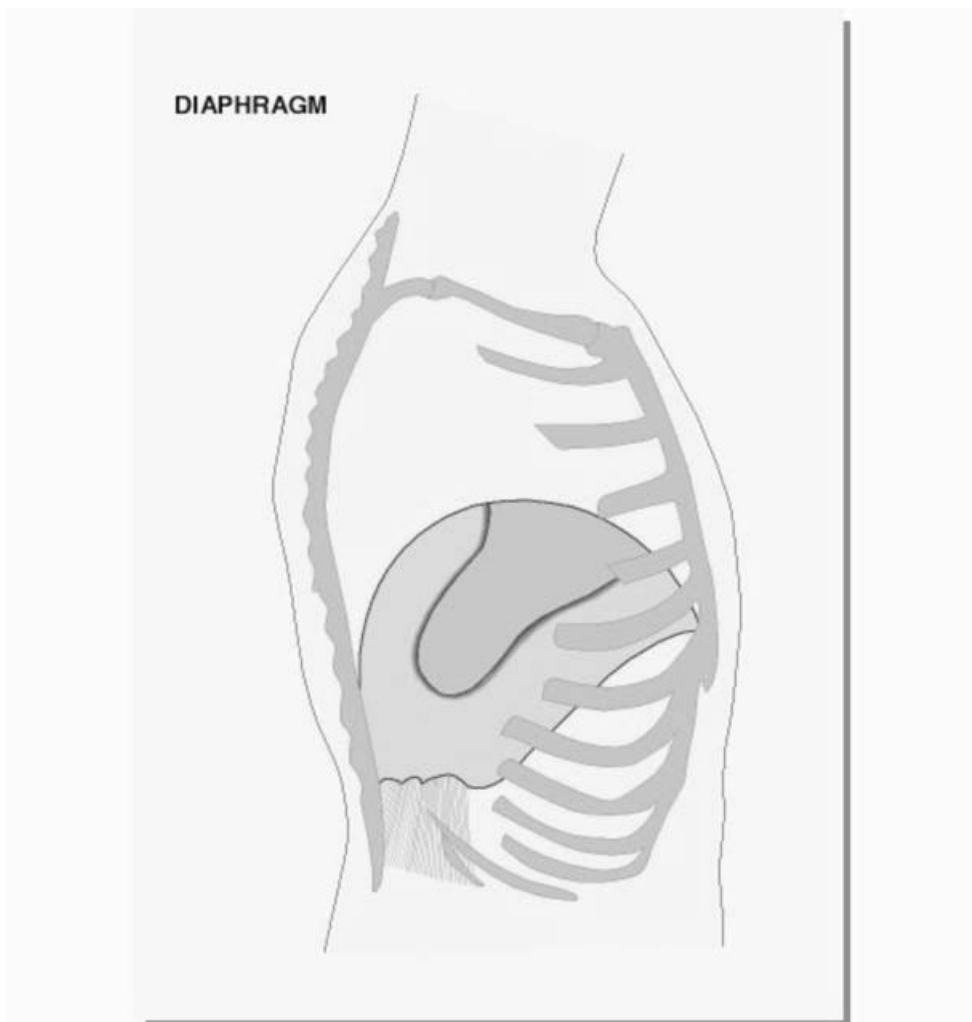


Fig. 2 Medical illustration of the diaphragm

wanted to develop greater awareness of the lower part of her body and a sense of being grounded in playing to help her breathing.

Few connections between breathing and musical line

Although integrating breathing with musical issues was a key principle which emerged from the literature review, the participants talked less about the connections between breathing and musical expression than they did about technical aspects of breathing and its relationship to performance anxiety. The most common perceptions they articulated

related to the gaps between phrases, where they realised that they tended to breathe in wherever there was a slight pause in the music. For example, Hannah reported:

[looking at first recording of a Ferling study] ... like snatching a breath there, I didn't need to snatch a breath, because I probably wasn't even taking much in, it's just that whenever you have a slight pause, like a quaver rest or something, the tendency is just to breathe in, whereas I probably just needed to breathe out there, and I was snatching a breath.

She also observed that the need to breathe out and in quickly between phrases would affect the flow of the music: 'And I don't look after the ends of phrases because I'm too worried about breathing.'

The participants also made connections between breathing and a feeling of being prepared to play, both in terms of how well they knew the music they were performing and their mental and physical state as they approached the performance. For example Clare, before looking at her first video recording, immediately said: 'I wasn't prepared. So my support went and notes didn't speak. And once one thing doesn't work, then it's a downward spiral.' She did not refer directly to her breathing, but the notions of support or of notes not speaking both relate to the rate and consistency of the air flow in playing. She then went on to talk about her lack of preparation in terms of not having a feel for the 'phrasing' of the music, and so not knowing the lengths of the breaths needed. She did not mention, however, rhythmic aspects of breathing in relation to the pulse of music, or any specific connections between breathing and the expressive qualities in the music. This lack of connection between breathing and either the pulse of the music, or expressive qualities in playing, was typical of the students' perceptions at the beginning of the research, and they all focused on breathing as a technical issue.

A strong relationship between breathing and anxiety or self-criticism

The participants suffered from considerable anxieties about their playing, and it was evident that these could contribute to a vicious circle of negative experiences in performance. For example, in the following extract Hannah recalled her own mounting anxiety in performance, and its impact on her breathing, posture and concentration:

H: I got more and more worried through the recording that my reed was a bit too hard ... it still needs a bit more scraping really ... I was already thinking about it quite soon into the piece.

HG: What's that doing to your breathing?

H: Sagging every time I take a breath. Yes [as she watches the video recording] ... I think my posture has become slightly more bent over ... it just proves how I lose all concentration when I get stressed about things, and I'm anxious about the breathing, it's getting harder and harder work, or the reed's bad or I'm just getting really tired, and then everything goes, and you can just tell I'm not concentrating on listening to the piano and interacting ... and looking after every note, every end of phrase and every bit of tuning ...

In contrast, participants hardly ever talked about aspects of their playing which they considered successful. Whilst this may have been connected to a perception of the research wanting to establish a model of best practice and therefore criticising anything which fell short of an ideal, it was notable that the participants' responses to the most open questions about what they noticed about their breathing tended to focus on what they felt were shortcomings. This was perhaps indicative of the way in which they engaged with themselves generally as players and performers. A longing to fix problems, and frustration with not being able to achieve goals seemed to encourage a negative view of their own abilities. Terry, for example, said that he never felt he was improving. Whilst it is undoubtedly difficult at an advanced level to perceive changes from week to week, and it is often only in looking back over a considerable period of time that a musician will identify the changes they have been able to make, Terry's perception was markedly self-critical. Furthermore, his approach related not only to situations when he was giving a public performance, but to playing in general, including his practising. Terry was not an exception, and his approach highlighted a theme which became increasingly evident through the process of the research and in analysing the data. This related to a prevalence of anxiety in learning which impacted on students' confidence as players, and in their ability to take responsibility for and direct their own learning.

Hannah, similarly, talked about difficulties she experienced, some of which were linked to the learning environment:

I do go through lots of problems with practising, having some really bad days when I just can't stand how I'm playing and it really puts me off [laughs] ... Perhaps since I've come to Guildhall, less and less of the time is when you have really positive experiences, and you think 'oh wow, it's really inspiring', there's less and less of that, I'm just becoming more and more critical I think ... I think my ears have improved a lot since I've been here, and I'm much more aware of what I'm doing, and I'm much more critical just because of hearing what's wrong, more than I heard what's wrong before.

She understood that having to be more aware of details and nuances of technique and musicianship also brought with it the dangers of never-ending critical thinking and self-evaluation. In expressing this, she identified a key pressure experienced perhaps by many students in a conservatoire education, where highly refined standards in playing are a normal expectation. The culture of the institution was shown here to have the potential to be inhibiting to student learning as well as stimulating.

Difficulties in articulating and analysing experiences of breathing

All the participants suggested that the internal sensations of breathing impacted significantly on their playing. However, whilst they usually expressed the desire to improve breathing clearly, when they attempted to articulate their experiences more specifically, their descriptions often became confused or vague. For example:

HG: when you start to struggle with the breathing, can you describe that physically?

T: ... I don't know where to start ... I don't know what happens first ... I could tell you some of the things that I notice ... first thing, and I think it's almost visible when I play the last note, is that when you try and relax I feel my diaphragm almost knocking ... it won't just go vvvooooffff ... it just sort of [knocks on the table] as you stop playing and you want to take that final breath of stale air out or take breath in or whatever it is ...

However, the participants' responses also suggested a tendency to rely on the teacher to come up with solutions to particular difficulties. Participants were perhaps not used to articulating and analysing their experiences with breathing, and this was compounded by the fact that the processes of breathing are physically internal and for the most part cannot be seen. This seemed to be a particular characteristic of his relationship with me as a teacher, which was reminiscent of a doctor–patient relationship, with Terry waiting for a diagnosis from me as the teacher and a prescription for a remedy for his difficulties. This placed me as the teacher in a role of great responsibility but where the foundation of my knowledge was largely based on my own experience as a player, and was not necessarily sufficient to make a useful diagnosis or to prescribe a useful remedy for another player. Furthermore, when Terry adopted a more dependent role, reluctant to trust his own perceptions and experiment with his own ideas, this limited his learning potential, especially in the context of long hours of practice where he had to be his own teacher. The impact of the teacher–pupil relationship and the individual player's approach to learning on the process of developing breathing practice was not discussed in the literature review relating to breathing and oboe playing, but emerged here as significant and has been identified elsewhere (Sogin & Vallentine, 1992; Gholson, 1998; Reid, 2001; Gaunt, 2006).

Participants also lacked knowledge of the anatomical and physiological changes involved in breathing whilst playing the oboe and their implications. Reluctance to adopt a problem-solving approach may in Hannah's case have been congruent with the characteristics of relentless self-criticism she identified. With Clare, on the other hand, it seemed that her lack of awareness of the details of her breathing related to physical and mental distraction she experienced in playing. She found it hard to say anything at all about her breathing. It was only with considerable prompting that she noticed the big physical movements she made at many breath points between phrases. Whilst I found this surprising, the perspective of the Alexander Technique specialist was illuminating. He showed that the ways in which Clare moved when playing were emphatically driven by aspects of the music such as the higher and lower pitches and the dynamics. He drew attention to the fact that she was choreographing the high and low pitch changes by moving the oboe up and down, and similarly moving the oboe up for loud passages and down for quiet ones. These movements increased as she became more tired and her breathing was more strained. He suggested that these movements were involuntary, she was not consciously choosing to do them, and indeed might well have trouble choosing not to do them (Sanders, 2002a, 2002b).

It appeared, therefore, that Clare's internal sense of physical self was considerably weaker than her sense of external factors such as the music on the page. Consequently her attention was being pulled away from her physical sensations and self-awareness, and she was being driven by the attempt to fulfil the requirements of the music in a way

which actually compromised her physically, creating unnecessary tension and impeding the flow of air sustaining the musical line. The balance of attention to self and to external factors, such as the printed music, seemed therefore to be an important consideration. With oboe playing it appeared that the physical effort required and the uncomfortable physical sensations which this generated could in fact distract a player from using self-awareness productively, and away from more analytic and reflective approaches to learning.

Changes in breathing practices and participants' experiences

Over the course of the action research, a number of changes became evident in the participants' playing, and in their approaches to breathing. Participants articulated what they felt was stimulating these changes, and which particular aspects of the learning environments offered in the research were helping or hindering their development. Some of the things which they found beneficial were consonant with the principles identified in the literature. For example, planning breathing between phrases systematically and marking this on the music generally increased their sense of control. Other aspects had a more mixed response. For example, although some participants found physiological understanding of breathing helped their practice, others found it confusing.

Stronger awareness of breathing

In his second interview Terry emphasised again that a key characteristic of effective breathing was that it should not interfere with other aspects of performance. When asked what facilitated this aim he suggested: '... being fully aware of exactly what it is that you're doing ... being so much aware of it that in a way you don't have to be aware of it.' In a similar vein, Clare described such awareness metaphorically:

C: With my breathing it's like driving a car. When you first learn to drive a car, you have to think about it all, then you don't think about it, and I've got to the stage where maybe I don't think about it.

HG: So where does that leave you now?

C: I need to relearn a few things ... pretend it's a new car.

All four of the students who participated in all aspects of the research developed new awareness both of their own existing breathing patterns, and of concepts/practices which could help or hinder further development. Furthermore in Hannah's case, although she was extraordinarily self-critical of her performance and breathing in the first video recording, by the end of the research her comments were more measured, and she was able to articulate specifically how she was now achieving greater control in her breathing, reporting that increasing awareness of breathing was helping her to develop her whole physical use during playing:

H: ... yes I have relaxed a bit [over the whole project] ... I think I have grounded everything ... feeling more grounded, relaxing shoulders and not being so tense, it's difficult with some habits you've had for ages ... Before I just wasn't aware that I was

snatching short breaths where I didn't even need it. Now I'm conscious of when I do it, so I correct it the second time. Planning breathing, if I don't get a chance to plan it before I actually play a piece, or if I'm sight reading a piece or something, just being aware of it more, so that when I'm playing through, I'm thinking 'I now need to breathe out' or I'm thinking 'Don't gasp a breath' or 'relax' or, yes, just being, consciously thinking about it as part of playing as a whole, which I wouldn't really have thought about before.

Her developing awareness of breathing seemed to coincide with growing self-awareness overall, which enabled Hannah to listen to herself and her physical needs as a part of the process of playing, to match this with the musical demands, and so become more active in directing her progress as a whole.

Tension between physiological understanding and practical know-how

Whilst anatomical and physiological understanding of breathing had some significance for the participants, the translation of concepts into practice was more important, and this was not always easy. The seminar work on understanding the anatomy and physiology of breathing generated mixed responses. Terry found it very useful, Belinda and Hannah described it as useful in parts but also at times confusing, Clare considered it a waste of precious practice time. Changing understanding, however, had some impact on the participants' approaches to playing. Belinda and Terry, for example, realised that their image of the diaphragm was not simply incorrect, but detrimental to their playing, as it tended to increase physical tension in a small area of the abdominal muscles, rather than spread the physical effort through a greater range of muscles. Terry began to change his thinking particularly in relation to two ideas: that the diaphragm has a dome shape when relaxed, and that it is attached along a portion of the lower spine:

... I never quite realised where the diaphragm comes. Which is funny given that we talk about it generally as oboists a lot of the time ... and I thought it was fairly much straight across your body, sort of chopping you in half almost ... and so I suppose when you're thinking about what you're doing with your diaphragm, suddenly if you know what shape it is, you perhaps think slightly differently.

However, Terry also reported having difficulties in putting his new knowledge into practice. Indeed, as he suggested, even remembering the shape and position of the diaphragm was a challenge, given how embedded his old concepts were in his actual practice:

I think that's clearer, but it's one of those things that's ongoing in terms of thinking about what you do, because as soon as you pick up your instrument, things tend to go out the window ...

Echoing this, the other participants felt that whilst they were beginning to be able to put some new physiological ideas into practice, it would nevertheless take time to establish these as habitual parts of playing. Although a number of specific breathing exercises were used through the research, the process of incorporating these into regular individual practice was not straightforward. Hannah, for example, remembered an exercise of breathing right

out until breathing in came as a natural reflex. She felt that this helped with her tendency to forget to breathe out, but it was difficult to make this an automatic part of playing.

Hannah also identified potentially confusing differences between breathing exercises for playing the oboe, and breathing exercises taken from Pilates. The Pilates exercises all required a stable lower torso and mostly thoracic breathing. This was discouraged with the oboe exercises, which tried to develop flexibility and elasticity in the abdominal muscles, in order to reduce excess tension in this area, also to take some of the strain of generating air pressure to play away from the thoracic area.

Of the concepts and techniques relating to breathing used through the action research, the ones which the participants identified as most valuable were relatively simple: marking in breath points between phrases in the music; directing the breath to the crown of the head when playing; breathing out as completely as possible before starting to play and at breath points between phrases; and simply paying attention to the breath. The single most important concept which seemed to change for the participants was a clear understanding of the basic directions of the breath in playing. Its practical application in the Alexander Technique workshops was successful for all the participants, and was considered more uniformly accessible than information about anatomy and physiology presented in a seminar format. The Alexander Technique specialist emphasised the simplicity of the concept being a part of its value. For example he reported on some work done with Jenny:

She said that the experience of the relative simplicity of this combined upward thought made thinking this inside actual performance something definitely within her grasp and whilst not fully mastered in a moment was something she felt able now to go on to develop. This concrete experience gave her the confidence in her capacity to work at it, something she had presumed impossible because up until now it had all seemed so overwhelmingly complex . . . the oboe, the reed, the breathing, the music, her neck, her head, her back, etc.

Terry identified the idea of breathing out upwards (whilst blowing and at the end of a phrase) as key to changing his posture, and to the experience of *releasing* physically to breathe in, rather than the in-breath being effortful. Hannah said that she had previously thought of these directions (up for the out-breath and down for the in-breath) the other way around. She now found it helpful to reverse her old idea and establish the direction of up for the out-breath and down for the in-breath. This helped her to focus more on the out-breath, and to lessen her tendency to tighten up through the middle of her body, so breaking the cycle of constantly breathing in and forgetting to breathe out at pauses in the music:

H: . . . Well when I breathe out I was always sagging down, and it should be . . . kind of up in a diagonal . . . and out, rather than down through the oboe which encourages bad posture and leaning over.

HG: And what about the in-breath?

H: I don't really think so much about the in-breath, just try not to raise up my shoulders, but . . . keeping stable.¹

In contrast, she had not taken in new information about the shape and position of the diaphragm, but preferred to continue with her existing images:

HG: What about your idea of support these days?

H: I still find that difficult to think about ... I suppose ... it's about thinking about constant breathing, and about producing a clean, smooth, constant air flow more than anything else, and not disrupting that, like when you want to support low notes and quiet notes, rather than tensing up and shying away from it, actually just having a constant breath flow, I think of that really as support.

*Fewer gasping breaths, and a more relaxed relationship
between breathing, posture and movement*

At the beginning of the research, one of the strongest connections which all the participants made was between breathing, posture, and the movements they made in playing. The changes which they made through the research were clearly evident in the comparison between first and second video recordings, particularly in the kinds of movements they made when stopping to breathe between phrases. Terry reported that he looked more open physically in his second video recording, and had felt more comfortable:

T: there's less scrunching down here [indicates abdominal area], I think perhaps the first time [first video recording] I was much more uncomfortable.

Hannah identified that the Alexander Technique workshops had helped her practically to work on her tendency to take lots of gasping breaths, which then had considerable knock-on effects on her posture and movement:

Sometimes I think about how to start a piece ... starting without breathing in ... not gasping huge deep breaths ... I've learned how much I sag when I go to stop and breathe in, and how I get stiff shoulders and stiff neck when breathing out ...

Hannah also noticed the improvement in her own performance:

... I don't think I'm sagging much, I think I'm remaining quite still. I'm certainly not gasping ... I'm making use of the time that I have got to breathe, and using that quite efficiently.

Clare reported that she remembered being told by a previous teacher to breathe in a lot of air. She felt that her response to this had been to gasp, raising her top teeth to open her mouth, as opposed to dropping her jaw, and allowing her ribcage and abdominal muscles to expand. Here she made an important connection between the gasping breath and a perceived need to take in lots of air in order to play the oboe. The amount of air inhaled for oboe playing was an important point of debate in the literature (Sprenkle & Ledet, 1961; Rothwell, 1962, 1974; Goossens & Roxburgh, 1997), with some more recent writers generally suggesting that players often tend to take in too much air, more than the ensuing musical phrase requires, and that this can create physical discomfort (Robinson, 1988; Koch, 1990). In Clare's case it was also clear that her habit of gasping in air was associated with a tendency to move the whole body whilst playing in such a way as to

seem to be conducting herself, with the arms and oboe going up with higher pitches, and sinking down with lower pitches. As the Alexander Technique specialist suggested, these movements were usually involuntary, and if anything detracted from the musical result. By drawing attention to these habits, Clare was able to release physically and make other choices about how she moved in playing. She herself felt that, in general, her performance improved and that she had greater poise in playing.

Stronger connections between breathing and music

By the end of the action research, the participants were beginning to make more connections between breathing and musical issues. Hannah confirmed her initial feeling that planning her breathing was one of the most useful things she could do: 'When I plan the breathing and think about posture and breathing together as well, that all helps the tone and phrasing.' She went on to talk about these connections giving access to greater expression and musical commitment in playing: 'if you do get into the music . . . well the study didn't sound like a study.' Others discovered how much easier playing felt when matching the amount of air to the needs of the phrase. Clare realised, when she reviewed the first video recording in the second interview, that she had not been prepared in terms of understanding the phrasing of the music, and therefore could not know what kind of in-breaths she needed to take. This was something which she now felt more aware of and able to change, although she did not feel she was particularly successful in making such connections in the second video recording.

Whilst there was a general inclination to focus on technical aspects of breathing and playing, musical aspects of breathing began to become more significant through the research, and indeed in some cases the distinction between the two became less pronounced. However, whilst all the participants articulated some changes in this area and growing awareness of the relationship between breathing and musical pulse and expression, this aspect was given less focus than the relationships between breathing and posture and movement, or breathing and anxiety. This may have been exactly because the focus on the physical and personal aspects tended to sap the musical issues of energy and attention. This demonstrated the need to address technical aspects of breathing, its direction and relationship to the body and movement, but also underlined the potential dangers in such work, of losing sight of musical impetus and the development of breathing practice in relation to musical expression.

Development of strategies for reducing anxiety and self-criticism

The participants identified a large number of different stresses which they experienced as oboe players, and indicated that these often had a direct relationship with their breathing. As well as performance anxiety, they discussed uncomfortable reeds, getting tired through a piece, technical mistakes or musical things not going to plan. Whilst playing any instrument has its stresses, it seemed that with oboe playing the added dimensions of unpredictable reeds and high physical exertion compounded the problems.

For Belinda one of the most important features of this research was the discovery that although breathing could be adversely affected by anxiety, she could use breathing to help

prepare herself to play (practising or performing) in a way which was calming and would stop her worrying so much about things:

I think once I've got that sorted [breathing exercises as a preparation to play], if I ever feel the need to de-stress or calm myself before a performance, I think I'll find it easier to clear my mind, because I've been doing that . . .

Similarly Hannah talked about the ways in which she was now becoming aware of the crippling effect of worry, and how she was trying to tackle it:

H: It's the whole spiral of thought thing that I've been trying to work on this term as well, because that's what's improving my tonguing, which has been so bad for years, I've been panicking about it and stressing about it for so long that I couldn't get it any faster, and just thinking about it and imagining myself being able to do it, and thinking positively and letting it happen rather than getting bogged down in it . . . it's the same kind of logical thinking about the breathing as well, remaining calm . . .

HG: And it's the worrying about it that actually stops you doing it?

H: yes, totally . . . and actually in my practice, if I stop worrying about it, I think it's amazing what you suddenly find you can do . . . I'm just in the process of hopefully changing all that.

Through the research some of the participants began to discover more positive approaches to breathing, and to sustain more effective practices for longer when they were playing, even though the old stresses had not gone away.

In reviewing their video recordings, the participants were also, at times, surprised by how little their sense of stress (physical and psychological) was evident to an audience:

H: It actually surprised me how much of a personal thing it is, how it's not actually obvious from the video exactly what I'm thinking and what I'm stressed about, and particular notes that I may have grimaced at. Because it's so obvious to me and it really upsets me when I'm playing, and you really get affected by every little detail.

HG: But you don't see it on the video?

H: It's all quite smoothed over really. It makes you think don't panic so much, don't react so much. If all the breathing goes haywire just because you're panicked about this little passage you've just done, and you can hardly see it on the video . . . it seems silly.

Reviewing the recordings offered the participants a different perspective on their own experiences, and they were able to approach the stress differently, giving a new sense of proportion to the difficulties.

Effects of the research process on learning

For all the participants, the process of analysing their breathing practice and charting its change over time brought into focus broader issues of their whole approach to playing, practising and performing. All four participants who had been involved in the entire process were significantly more able to identify learning goals for themselves, and to approach the

development of their playing more positively and independently than they had been at the beginning. Belinda, for example, noticed her own tendency to avoid reflecting on her work, which made it difficult to break out of a vicious circle of frustration at things not going well. Terry talked about wanting to become more consistent with his breathing and to use this to work on his sound quality. Hannah wanted to focus on breathing and posture when playing in high and low registers in the same way that she had begun to do for the middle range; to continue to plan breathing in detail in pieces; to work at being more grounded, in particular not standing on one foot whilst playing.

In contrast, participants who did not participate in the project other than the two video recordings and one interview, found it difficult to articulate short- or medium-term aims. One participant could not point to any aims for the next period of study. A second mentioned focusing on breathing out and being generally expansive physically whilst playing, but suggested that these had already been the aims for some considerable time. It seemed, therefore, that the research process had itself enabled the participants to become clearer about their own learning process and to take more responsibility for its development. Several aspects of the research seemed to contribute to this, and these are discussed in the following sections.

Diverse feedback

All the participants emphasised the value of reviewing the video recordings of their own performance. This provided quite a different form of feedback compared with the more usual teacher–student interaction. For example Terry suggested:

Doing things like this . . . looking at and talking about what you're doing is very helpful, that's probably been one of the most helpful things. Because just to sit down and talk through exactly what you've seen, and knowing what you would have been feeling . . .

Although initially they all found the process worrying – it was not a familiar part of previous learning experiences – they were more comfortable with the process even by the second interview session. The experience was empowering particularly as it offered participants feedback which was direct, unmediated by another person's interpretation, and which they could review at their own pace. There was a sense of important discovery and self-realisation in many of the comments. Some were surprised and pleased by what they saw. For example as Clare reviewed her second video recording of the Mozart concerto slow movement, she recalled some of her thoughts when she had been performing:

Am I in tune? Because I haven't got a clue whether I'm in tune, I hate tuning; and I'm conscious that you say that I don't blend with the piano sometimes . . . and now I'm thinking . . . I can't remember how the first few bars go . . . is it going to speak in the right place . . . is this a nice sound? . . . my lips are tired . . . I just felt really uncomfortable . . . and that feeling was so strong that there wasn't any room to think about anything else . . .

However, when she watched the video recording she explained 'it doesn't sound that bad now I listen'. In retrospect, she was surprised by how good the playing was, and by how

little she appeared to be struggling. 'Up to that C [near the end of the piece] it was quite nice . . . I thought I was quite with the piano and in tune . . .'

At other times, participants were able to identify things relating to their playing which they had not thought about previously:

T: I don't know . . . Looking at it that shoulder's almost lower than the other one.

HG: Your right one is lower than the left?

T: Yes.

HG: I think it is. Does that surprise you?

T: Yes, because you would think it would be higher if it's the one I always feel more tense.

Particularly valuable seemed to be the chance to compare the two video recordings where the participants could see clearly, sometimes for the first time, changes which they had made in their playing over the course of the project, but were difficult to be sure about on a day-to-day basis.

Whilst the video recordings and their review were originally designed to gather data about the participants and their breathing practices in playing, they also enabled the participants to have more control of their learning process, articulating their own strengths, identifying things they wanted to work on, and evaluating the changes they had been able to make. Hannah went a step further, and began to acknowledge and address overarching issues of low self-confidence and extreme self-criticism in her approach to playing.

The value of group work

Although participants did not identify working in a group as a particularly beneficial aspect of the work, some of the most important things they mentioned arose in a group context. Examples of this were the workshop focused on preparing to play and practise, and the performance and Alexander Technique workshops. Some of this work could also perhaps be done in one-to-one sessions, and indeed when participants talked about what they felt would help them in the future to support their own development with breathing work, they highlighted personal practice and one-to-one sessions. However, it was clear in fact that group work enabled a greater variety of perspectives, approaches and ideas to emerge. Here the participants were also in an environment in which it was relatively easy to try out new things, away from established habits, and the pressure to perform which can dominate one-to-one sessions. The group work was evidently in itself extremely beneficial educationally, even though it was not planned in the research with this in mind.

An extended set of learning opportunities

In this respect the approach of the research was different from approaches in the literature, where authors tended to present their own opinion about optimum breathing practice and to be focused on transmitting this, without differentiating between learners or learning styles. The participants were given the opportunity to engage with considerably more diverse

learning experiences than they would normally have had. Their responses to the different aspects of the action research varied considerably, and this highlighted the individuality of each person as a learner as well as player, suggesting that the variety of approaches which had been used in the research (certainly wider than previously in my own regular teaching) was a significant strength.

Furthermore, at the end of the research, participants identified different aspects they wished to continue with. Terry, for example, particularly wanted to experience more work with the Alexander Technique specialist. Others indicated that they would like to go on to try approaches from other disciplines such as yoga, where breathing is an integral part of practice. They began to appreciate the potential value which different approaches might offer, and so broadened their horizons about how they might benefit from more diverse learning opportunities. This marked, perhaps, significant development in the traditional model of the delivery of principal study within a conservatoire, which often tends to work more or less exclusively with one-to-one teaching with a single professor at any one time.

Conclusions and implications

This action research confirmed the importance of effective breathing in oboe playing, in terms of control of the instrument, physical stamina, projection of musical ideas and management of performance anxiety. However, given the emphasis on the significance of breathing in the literature (Gaunt, 2004), it was surprising that the participants had relatively little awareness of their breathing in practice at the start of the research.

Key principles underpinning effective breathing which were identified from a literature review (anatomical and physiological understanding; awareness of breathing in playing; connecting breathing to posture and movement; connecting breathing to music; connecting breathing to performance) were all shown to contribute to practice, but to different degrees. In terms of specific techniques and concepts for developing practice the simple concepts were the most useful, such as focusing on the basic directions of the breath in playing; making breathing out the active, expressive phase; releasing physically when breathing in, so the air drops down into the lungs without forcing or gasping; using the breath in a constant flow and avoiding breath holding; marking in breath points between phrases. More complex ideas and approaches such as matching the quantity of air breathed in to the requirements of the phrase, or the dynamic opposition between muscular tension and relaxation were not taken up so enthusiastically, and had relatively little impact. The research also began to demonstrate intricate relationships between breathing whilst playing and aspects of learning, particularly in establishing and maintaining positive and constructively critical approaches to learning.

Understanding the basic anatomy and physiology of breathing proved to be useful to some participants, particularly where they had previously been working with a concept which misinterpreted established knowledge (for example the diaphragm contracts when breathing out). For other participants, making connections between concepts of breathing and the practice of playing was difficult and even felt irrelevant. However, it was also clear that physiological understanding could be invaluable for teachers as a diagnostic tool, in making sense of what a player is doing when playing before attempting to facilitate change. Furthermore, the different responses to this aspect of the research highlighted the individual

needs of students, and emphasised the importance for teachers of having a diverse range of knowledge and strategies at their fingertips.

It was clear that breathing issues were inextricably linked to posture and movement. Participants realised how excess tension in playing, and a tendency to focus on the in-breath and over-inflate (taking in too much breath for the requirements of the phrase), or to take too few breaths and so set up a pattern of accumulating carbon dioxide in the bloodstream, could all lead to physical distortion and set up vicious circles of movements which were not necessarily voluntary, and which disrupted musical expression. On the other hand, the perception of playing as an athletic activity, requiring considerable physical attention and training, was not really taken up in practice by the participants.

Some of the participants were able to make connections between breathing and musical aspects of playing, although these tended to be at a basic level, such as planning pause points, or linking the breath to the pulse of the music. Matching the in-breath to the requirements of a musical phrase was understood as a concept, but proved to be difficult to translate into practice with any consistency. On the other hand, the process of warming up and preparing to play, especially mentally, was identified as making a significant difference to the participants' sense of the quality of their practice and of their achievement. Breathing exercises made an important contribution to the processes they developed themselves in this area. The tendency for participants to be severely critical of themselves as players and for this to reinforce patterns of anxiety and limited learning, also emerged.

The research process invited the participants to reflect on their own learning over a period of time, and to share their experiences as a group. This became a significant element of the research, developing participants' awareness of their own approaches to their work, enabling them to benefit from each other's perspectives and ideas, and to determine alternatives and modifications for themselves. The empowerment of the individual in terms of his/her own learning has been emphasised as the most critical element in assisting development as a musician (Green & Galloway, 1987), and has increasingly become a focus of Higher Education in general (Biggs, 1999; Ramsden, 2003). However, it has perhaps not been such a common feature of instrumental pedagogy in Higher Education. Group work and reflective aspects of the action research raised issues about learning breathing as an oboe player, which were not discussed in the literature relating to breathing. Nevertheless, they began to demonstrate the impact on student players of the learning environment, and highlighted the significance of the relationships which develop between teachers and pupils. This suggests that the nature of learning environments in conservatoires needs to be studied in more detail, particularly in relation to evolving theories of learning in Higher Education, and that building on the significant areas of work which are now being developed in some conservatoires including the Royal College of Music and Royal Northern College of Music, will be invaluable.

Notes

- 1 The tendency to be focused more on the in-breath than on the out-breath has been noted amongst wind players in general, and has been associated with patterns of hyperventilation and performance anxiety Widmer, S., A. Conway, *et al.* (1997). 'Hyperventilation: a correlate and predictor of debilitating performance anxiety in musicians,' *Medical Problems of Performing Artists*, 97–105. This evidence of

a connection between anxiety and breathing dominated by the in-breath helps to make sense of the benefits and sense of tension releasing which participants articulated in focusing more on the out-breath.

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Appendix 1 *Student participation in the action research*

| Student name | Profile | 1 st video recording | 1 st interview | Anatomy and physiology seminar | Breathing workshops | Alexander Technique | Oboe lessons with author | Laboratory testing and workshop | 2 nd video recording | 2 nd interview |
|--------------|--|---------------------------------|---------------------------|--------------------------------|---------------------|---------------------|--------------------------|---------------------------------|---------------------------------|---------------------------|
| Belinda | Year 2 BMus | | | | 3 | | – | | | |
| Jenny | Year 4 BMus | | | | 2 | | 4 | – | | |
| Camilla | Year 4 BMus | | | | 2 | – | – | – | | |
| Julia | Year 4 BMus | | | | 1 | – | – | – | | |
| Terry | Year 1 Postgrad | | | | 3 | | 7 | | | |
| Hannah | Year 2 BMus | | | | 4 | | – | | | |
| Clare | Year 2 BMus | | | | 4 | | 10 | | | |
| James | Year 4 BMus | | – | – | – | | – | – | | |
| Steve | Year 1 BMus, then transferred to Year 1 university | | – | – | – | – | 4 | – | | |
| Jane | Year 3 BMus | | – | – | – | – | – | – | | |
| Martha | Year 1 Postgrad | | – | – | – | – | – | – | | |